# ABSTRACT


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| Title of Dissertation: | CULTURAL DEPENDENCE OF EMOTION-REGULATION STRATEGIES |
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Emotion-regulation strategies are attempts to impact emotions within oneself or others (McRae & Gross, 2020). Strategies such as mindfulness and reappraisal are associated with benefits to well-being and mental health. However, the influence of culture on mindfulness and reappraisal has not been established.

Emotion-regulation strategies are culturally dependent. It is through cultural socialization that cultural values are transmitted. Cultural values give meaning to emotion and emotion-regulation strategies.

This dissertation proposes a theoretical model in which (1) cultural values predict mindfulness and reappraisal emotion-regulation strategies, and (2) the effectiveness of both strategies is assessed using the emotional dimensions of valence, arousal, power, and surprise. Three pilot studies were conducted to test the validity of emotion-regulation instructional messaging, to create a negatively valenced emotion-eliciting video stimulus, and to assess the

differences in mindfulness between American and Chinese students. For the main study, American and Chinese students completed an online experiment that tested the effects of emotion-regulation strategies.

The findings suggest that emotion-regulation strategies differ both culturally and in their effects, either altering the emotions individuals feel (in the case of the reappraisal strategy) or the experience individuals associate with the emotions they feel (in the case of the mindfulness strategy). This study supports the need for further investigation into the relationship between cultural socialization's impact on emotion-regulation strategies.
*Keywords:* emotion-regulation strategies, culture, mindfulness, reappraisal, control, ideal affect, symbolic interactionism, message congruency

# CULTURAL DEPENDENCE OF EMOTION-REGULATION STRATEGIES

by

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# Cultural Dependence of Emotion-Regulation Strategies

In the major motion picture, *Star Wars Episode V – The Empire Strikes Back*, Luke Skywalker trains to be a Jedi Knight on the planet Dagobah with Jedi Master Yoda (Kershner, 1980). One of the tenets of a Jedi's training is mindfulness, defined as an attempt to influence emotions within oneself by focusing nonjudgmentally on one's present state (Kabat-Zinn, 2003). Luke's training consists of completing tasks that will help him master (i.e., regulate) his emotions to ensure that the dark side of the Force does not tempt him. In one task, Luke enters a dark cave bringing with him his anxieties about facing Darth Vader. Luke loses his awareness of the present and is overcome by fear and vengeance; he hallucinates that he is in a battle with Darth Vader. During this emotional hallucination, Luke slays Darth Vader, revealing Luke's own face under Darth Vader's helmet. Luke's fear of falling to the dark side overtakes his ability to be mindful, causing him distress and resulting in Master Yoda losing faith in Luke's ability to regulate his emotions.

Not only have the merits of mindfulness as an emotion-regulation strategy been a popular theme in American films such as *Star Wars*, but they have also appeared in clinicians' treatment plans (e.g., Mindfulness-Based Stress Reduction, Kabat-Zinn, 2003) and communication theories such as anxiety uncertainty management theory (Gudykunst, 2005). However, the mindfulness literature still lacks an explication of when mindfulness, rather than cognitive reappraisal, an alternative emotion-regulation strategy, should be used.

To return to the S*tar Wars* example, one may identify the crux of the issue as follows: Why does Master Yoda train Luke to be mindful rather than teaching him to translate fear into another emotion such as hope? Approaching the question from a cultural perspective, could

Master Yoda's emphasis on mindfulness, rather than reappraisal, be a result of the Jedi culture's encouragement of this type of emotion-regulation strategy?

This dissertation seeks to answer similar questions. Do cultural values systemically account for the differences in use of emotional-regulation strategies (i.e., mindfulness and reappraisal)? When using different emotion-regulation strategies are emotions experienced differently post-regulation? This dissertation introduces a new theoretical framework to understand emotion-regulation strategies and culture. First, emotions, emotion regulation, and the emotion-regulation strategies mindfulness and reappraisal are defined. Second, from the perspective of a symbolic interactionist framework, culture is framed as a practice of socialization; through socialization different cultures can have different approaches towards emotion regulation. Third, to understand the relationship between cultural socialization and emotion-regulation strategies, cultural socialization is further specified into cultural values from the research areas of ideal affect (Tsai, 2007) and locus of control (Morling et al., 2002). The relationship between the cultural values and emotion-regulation strategies is explicated. Last, this dissertation tests the effectiveness of emotion-regulation strategies, measured by the emotional dimensions of valence, power, arousal, and surprise, in the context of interpersonal emotion-regulation message congruency.

This dissertation is organized as follows. First, it offers a literature review, from which several hypotheses are derived. Next, results from pilot studies are discussed, informing decisions about the emotion-eliciting stimulus, the measures, and the manipulated variables to be used in the main study. The main study methods are then described, and the results of the hypothesis tests are presented. Last, the discussion section details the dissertation's limitations and presents suggestions for future research and conclusions.

# Chapter 1: Emotion-Regulation Strategies

The goal of this dissertation is to understand the relationship between cultural socialization and emotion-regulation strategies. This chapter begins with defining *emotions* and *emotional-regulation strategies*. After a brief introduction, two emotion-regulation strategies – mindfulness and reappraisal – are expanded on with evidence comparing the two as distinctively different strategies.

First, what are emotions? Researchers have found the definition of emotions to be elusive, lacking consensus among scholars in the field of emotion research (Hess & Thibault, 2009 as cited in Fink, 2022). Therefore, in selecting a definition of emotion the theoretical framework of how culture influences emotion regulation was considered. *Appraisal* was identified as a key construct connecting what emotions are to how individuals can regulate emotions using mindfulness and reappraisal, and the role of culture in the use and preference for the emotion-regulation strategies. Accordingly, Lazarus (1991) states that emotions are reactions that arise  when situations are appraised as being relevant to one's goals. The emotional response resulting from an individual's appraisal of a situation causes changes to their experiential, behavioral, and physiological bodily systems. Thus, emotions are multifaceted; they may involve loosely paired responses and changes in one's subjective experience, behavior, and peripheral physiology (Lazarus, 1991). Appraisals can vary in complexity, ranging from automatic arousal to complex integration of motivations and obstacles in an effort to achieve one's goals (Lazarus, 1991). After an individual appraises a stimulus as being relevant to their goals, they can employ emotion-regulation strategies.

Emotion-regulation strategies are attempts to influence emotions in oneself or others by initiating, maintaining, or modulating the occurrence, intensity, or duration of emotions (Gross,

1998, 2001; McRae & Gross, 2020). Gross posits five categories of emotion-regulation strategies: situation selection, situation modification, attention deployment, cognitive change, and response modulation (1998). This dissertation focuses on two well-defined emotion-regulation strategies, mindfulness (related to attention deployment), and reappraisal (related to cognitive change). In selecting these strategies for this dissertation, the following criteria were considered. First, the strategies should be ones that are commonly used. Second, it should be possible to manipulate the strategies in the laboratory and define them in terms of cultural differences (see Chapter 2 and Chapter 6). Third, there should be evidence that substantiates the benefits of the strategies. Mindfulness and reappraisal strategies have large body of research regarding their effectiveness in regulating emotions and both have been shown to offer benefits for individuals. For example, research shows that reappraisal and mindfulness are associated with greater physical health (Appleton et al., 2014; Murphy et al., 2012), greater academic and work achievement (Davis & Levine, 2013; Hülsheger & Alberts, 2021; Ivcevic & Brackett, 2014; Maynard et al., 2017), improved social outcomes (English et al., 2012; Van Doesum et al., 2013), greater psychological wellbeing (Gross & John, 2003; Nyklíček, 2011), and reduced symptoms of psychopathology (Cludius et al., 2020; Hayes & Feldman, 2004).

**Mindfulness and Reappraisal Defined**

In this section first mindfulness and then reappraisal is defined. Mindfulness originates from Buddhism and means being aware purposefully, nonjudgmentally, and in the present moment (Germer, 2005; Kabat-Zinn, 2003). Being mindful includes noticing what is happening without evaluating, analyzing, or reflecting on the information. Moreover, being mindful in the context of emotion regulation involves adjusting to stimuli as they arise rather than being defined or emotionally affected; everything that enters the awareness of a person who is practicing

mindfulness is “observed carefully but is not evaluated [appraised] as good or bad, true or false, healthy or sick, or important or trivial” (Marlatt & Kristeller, 1999, as cited in Baer, 2003, p. 125). Additionally, mindfulness is characterized by a present-oriented consciousness in which individuals focus on moment-to-moment experiences rather than the past or the future. The process by which one comes to embrace mindfulness, allowing for intensive self-observation without judgment, elaboration, or effort to fix or change the experience, “requires repeated practice and a fundamental shift in the way that we view emotions” (Hayes & Feldman, 2004, p. 257).

In contrast, reappraisal is a regulation strategy whereby an individual alters the emotional significance of a stimulus by re-evaluating their original appraisal (Gross, 1998). Through reappraisal, an individual can take an uncomfortable appraisal and manipulate it – without physically altering their environment – such that the individual finds the situation that elicited the appraisal more acceptable and less distressing (Chambers et al., 2009). For example, Gross (1998) conducted an experiment whereby he assigned participants to either a suppression condition or reappraisal condition. He then had the participants watch a film that elicited disgust. In the suppression condition group, participants were told to conceal their emotional reactions, while participants assigned to the reappraisal condition were told to shift their thinking to technical aspects of the film. Compared to participants in the suppression condition group, participants who were instructed to alter their thinking indicated less disgust and showed fewer behavioral signs of disgust (Gross, 1998).

**Mindfulness and Reappraisals as Distinct Strategies**

Researchers have identified both cognitive reappraisal and mindfulness as being effective in influencing emotions, altering both subjective feelings and neurophysiological responses (e.g.,

Chambers et al., 2009; McRae et al., 2008). It is essential to differentiate these strategies because they call upon different processes when regulating emotions (cf. Garland et al., 2015). Chambers et al. (2009), in their review of mindfulness, highlight the differences between mindfulness and reappraisal. In mindfulness, one's thoughts and emotions are mental states for which no action is required; here, an individual adopts nonjudgmental awareness and acceptance of the present. With reappraisal, one's thoughts and emotions are "treated as having some kind of inherent existence, and thus must be acted upon in some way. . . . [Appraisals] can be changed to be [a] more accurate or [a] more psychologically beneficial representations of reality (hence reappraisals)" (Chambers et al., 2009, p. 566). The difference between the two regulation approaches is that reappraisal influences one's emotions by changing how one appraises the situation, whereas mindfulness exhibits a detached acceptance perspective, such that an individual fully accepts each experience and environment without judgment. Mindfulness allows a person to interact with a stimulus in a detached manner that creates psychological distance from the stimulus (Bishop et al., 2004; Kabat-Zinn, 2003).

Empirical evidence supports the theoretical differences between mindfulness and reappraisal. One such difference between reappraisal and mindfulness is the cognitive cost associated with reappraisal and not with mindfulness. In an experimental study, 129 participants underwent an autobiographical sad mood induction where participants were asked to write and think about three events that made them feel lonely, sad, rejected, or hurt (Keng et al., 2013). Then participants were randomly assigned to one of three groups. The first and second groups received training in mindfulness or reappraisal, respectively, while the third group received no training. After practicing the assigned emotion-regulation training (or in the control group, no training) for five minutes, participants completed the Stroop Test.[1] The researchers hypothesized

that the reappraisal group would experience higher cognitive costs (as measured by the Stroop Test) due to the self-control challenges of having to override established negative emotions from the sad mood induction (Keng et al., 2013). Mindfulness did result in significantly less depletion of cognitive resources than reappraisal as indicated on the Stroop Test. The researchers suggest that although mindfulness and reappraisal are equally effective in reducing the intensity of the participants' depressed moods, the reappraisal strategy can negatively affect one's executive functioning if used after the elicitation of an uncomfortable emotion (Keng et al., 2013)

Opialla et al. (2015) studied the neurobiological mechanisms that underlie cognitive reappraisal and mindfulness. In their study, participants were sorted into either a cognitive reappraisal or mindfulness experimental group. Both groups were exposed to neutral and negative stimuli; the researchers recorded the brain activity of each group member using functional magnetic resonance imaging (fMRI). Both strategies activated a "common regulatory network"; however, the strategies also activated partially distinct areas of the participants' brains (p. 51). Participants in the mindfulness group showed selective activation of the insula, a region of the brain that has been shown to be involved in the regulation of the experience of emotions. In contrast, participants in the cognitive reappraisal group showed selective activity in the caudate, which is a brain region usually associated with cognitive control. The researchers concluded that the two regulation strategies employ "partly distinct psychological mechanisms," suggesting that mindfulness and reappraisal are indeed two separate regulation strategies (Opialla et al., 2015, p. 51).

Both emotion-regulation strategies are beneficial and effective in regulating emotions. However, theory and psychological and neurological evidence support the need to research each phenomenon separately. It is important to distinguish between the two regulation strategies

because each strategy's effectiveness may depend on context. To better understand the contextual factors that might result in the differential effectiveness of mindfulness and reappraisal, communications scholars should examine some of the following questions:

- *What messages cause the development of these emotion-regulation strategies?*
- *How are these messages created or socially constructed?*
- *What meaning is given and what values are associated with the use of mindfulness and reappraisal?*
- *Do these messages differ from culture to culture?*

Using a communicative framework to develop answers to such questions can help intercultural communication scholars explore areas such as interpersonal social support and intergroup emotions with implications for conflict management and negotiation strategies. Therefore, assuming that mindfulness and reappraisal are the same could be limiting. This dissertation examines the mindfulness and reappraisal strategies as separate concepts to understand how they function when one takes cultural values into account. I have explained the difference between mindfulness and reappraisal. In the following two chapters, I argue that these two emotion-regulation strategies are culturally dependent.

# Chapter 2: Defining Cultural Socialization

This chapter defines culture using a symbolic interactionist framework focusing on how cultural socialization transmits cultural values giving meaning to emotion-regulation strategies. Symbolic interaction theory (SIT) explains how humans, through interactions with one another, create symbolic worlds, and how these worlds affect behavior (Fink, 2016). An SIT framework treats culture as the symbolic world that surrounds human beings; it is thus a product of socialization. This research uses the following definition of culture, which aligns with SIT's treatment of culture:

> Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member's behaviour and his/her interpretations of the "meaning" of other people's behaviour. (Spencer-Oatey, 2008, p. 3)

According to this definition of culture, shared group-level values, beliefs, and behaviors give meaning to objects through interactions between people, influencing individual-level behaviors and perceptions. In other words, socialization is the process by which people learn "what is to be valued" (Arnett, 1995, p. 618). Values are the approach an individual has towards, or in relation to, an object. An object's value can be negotiated and recreated (Blumer, 1969) such that different cultures can ascribe different meanings to the same object:

> Culture is learned from the people you interact with as you are socialized. Watching how adults react and talk to new babies is an excellent way to see the actual symbolic transmission of culture among people. Two babies born at exactly the same time in two parts of the globe may be taught to respond to physical and social stimuli in very different ways. (Lustig & Koester, 1999, pp. 31–32, as cited in Spencer-Oatey, 2012)

This concept of variable meanings, particularly with respect to different cultures, extends to how people view and perceive emotions, which subsequently influences the emotional-regulation strategy individuals use. According to Mesquita et al. (1997), cultures can differ in the frequency of emotions, the behavioral response to an emotion, the linguistic categorization of emotional states, and the meaning of appraisals that result in emotions. If cultural values are associated with meaning-making then cultural values give meaning to how people express, feel, and regulate emotions, thus making emotion-regulation strategies culturally dependent. Though emotions have a biological component (Gross, 1998), the "appropriateness" of an emotion is dependent on context and thus culture (Friedlmeier et al., 2011). To comply with the standards of "appropriateness," which are defined by one's cultural values and interactions with their cultural groups, an individual uses emotion-regulation strategies to alter one's emotional response to stimuli in an advantageous way (Friedlmeier et al., 2011; Markus & Kitayama, 1991).

In conclusion, (1) cultural values are transmitted via cultural socialization and (2) cultural values give meaning to emotion-regulation strategies; therefore, preferences and use of emotion-regulation strategies are culturally dependent. In the next chapter, the influence of cultural socialization on cultural values from research areas of ideal affect and locus of control are used to better understand the cultural dependence of mindfulness versus reappraisal emotion-regulation strategies.

# Chapter 3: Cultural Socialization's Influence on Emotion-Regulation Strategies

A primary objective of this dissertation is to better understand the relationship between cultural socialization and emotion-regulation strategies. This chapter presents evidence and hypotheses modeling how cultural socialization influences cultural values and how those cultural values shape regulation-strategy preferences, ultimately affecting one's emotional experiences.

Specifically, the first two sections of this chapter explore the influence of cultural socialization on cultural values: (1) preference for high arousal positive states and low arousal positive states, and (2) preference for adjustment and influence. Preference for high arousal positive states and low arousal positive states comes from literature on ideal affect conceptualized in affect valuation theory (Tsai, 2007). Preference for adjustment and influence comes from the literature on locus of control (Morling et al., 2002).

After a discussion of the relationship between cultural socialization and the cultural values, this chapter details how cultural values predict mindfulness and reappraisal emotion-regulation strategies. Then follows a literature review detailing how the strategies affect the regulation of uncomfortable emotions. Lastly, this chapter points to research on how message congruency will affect the effectiveness of emotion-regulation strategies. Each section is accompanied by a set of hypotheses that are tested in this dissertation.

## Ideal Affect and Locus of Control

Cultural socialization's influence on cultural values is explored from the research areas of ideal affect and locus of control. Below is a literature review on ideal affect, locus of control, and their associated cultural values.

### *Defining Ideal Affect*

The concept of ideal affect refers to "affective states that people strive for or ideally want to feel" given their cultural background (Tsai, 2007, p. 243). Ideal affect is a goal-motivated preference shaped by cultural socialization. According to affect valuation theory (AVT), a culture's ecological, social, and historical factors all shape the affective states that an individual strives for and ideally desires to experience (Tsai, 2007). AVT states that how a person would ideally like to feel can differ from their actual affect. Actual affect is influenced by individual characteristics such as one's ability, temperament, and context. In this research, since ideal affect is influenced by culture, ideal affect is used to investigate the cultural dependence of emotion-regulation strategies.

Affective state is a broad term that refers to neurophysiological changes that an individual experiences as feelings, moods, or emotions (see Batson et al., 1992, for a comparative review of the terms affect, emotion, and mood). Affective states can be organized into two dimensions: valence and arousal (Bolls, 2010; Hamann, 2012; Russell & Barrett, 1999). In AVT, the valence of an affective state is measured on a positive to negative continuum. Positive valence refers to an individual's appraisal of potential gains when evaluating their environment, while negative valence refers to an individual's appraisal of potential losses (Tsai, 2007). According to AVT, one can measure the arousal of an affective state on a high to low continuum; high arousal refers to an individual's appraisal of environmental demands that require energy and mobilization, and low arousal refers to an appraisal of environmental demands that require the individual to rest and recuperate (Russell, 2003; Russell & Barrett, 1999; Tsai, 2007). In categorizing feeling states in terms of these affective dimensions, AVT refers to high-arousal positive (HAP) states, which include excitement, enthusiasm, and elation,

and low-arousal positive (LAP) states, which include calm, peacefulness, and serenity. In the next section empirical research is presented on how the cultural values, HAP and LAP differ by culture.

***Research on Ideal Affect***

European Americans report valuing HAP states more than individuals of Asian backgrounds. Scholars have tested for cultural differences between European Americans ($n$ = 79), Hong Kong Chinese ($n$ = 96), and Chinese Americans ($n$ = 81; 58% were born in the U.S. and 79% were raised in the U.S.) college students (Tsai et al., 2006). Using the affect valuation index (AVI), European American college students reported valuing HAP states (e.g., excitement, enthusiasm, and elation) significantly more and LAP states (e.g., calm, peacefulness, and serenity) significantly less than Hong Kong Chinese college students. Chinese American college students were found to value LAP states more than the European American college students and less than Hong Kong Chinese students (Tsai et al., 2006).

The different cultural preferences for HAP and LAP states were also found when comparing Chinese and American responses to excited and calm faces measured using functional magnetic resonance imaging (fMRI; Park et al., 2016). When Chinese participants were shown excited faces, fMRI scans of the participants' brains showed reduced brain activity in areas associated with reward (ventral striatum) compared to the European American participants. Additionally, a second sample of participants in the study completed a facial preference task that indicated that European American university students preferred excited expressions to calm ones (Park et al., 2016).

Popular media as a source of cultural socialization also reflects these cultural differences in preferences for HAP and LAP affective states. For example, Tsai, Louie, et al. (2007)

compared the affective content of bestselling American and Taiwanese Chinese storybooks. American children's storybooks featured more images of people with open, "excited" smiles with their teeth showing, and fewer images of closed "calm" smiles than in Taiwanese Chinese storybooks. Additionally, preschool children who read storybooks that included more engaging content valued HAP states more than LAP states compared to children who read storybooks with calmer content. Popular media like storybooks may also be one way people learn to value and reinforce specific affective states.

Similarly, people within a culture reinforce ideal affect values by participating in public displays of emotion on social media. Huang and Park (2013) randomly selected the Facebook profile pictures of 312 college students who were enrolled in six public universities in East Asia (Hong Kong, Singapore, and Taiwan) and the United States (California and Texas). Greater smile intensity, as indicated by smiling with teeth, was more common in the American photo sample than in the East Asian one. The relationship between public photos and a culture's ideal affect was also studied using U.S. and Chinese leaders (Tsai et al., 2016). Researchers retrieved photos from the leaders' official websites; in the vast majority of the photos, the subjects were posed. The results indicated that U.S. leaders' official photos were coded as displaying 6.25 times more excited smiles than Chinese leaders. Cohen's Kappa values indicating inter-coder reliability ranged from .61–.98. Researchers also calculated the average ideal HAP and LAP states by nation and found that the more a nation valued HAP states, the more frequently the nation's legislators exhibited excited smiles (indicated by toothy and open smiles) in photographs. In contrast, the more a nation valued LAP states, the more frequently the nation's legislators displayed closed calm smiles in photographs.

Furthermore, individuals also learn about values associated with ideal affect through cultural socialization of religion. Tsai, Miao, et al. (2007) found that Buddhists were more likely to value LAP states, while Christians were more likely to value HAP states. In another study, Koopmann-Holm et al. (2013) examined the effects of Buddhist meditation on ideal affect. Seventy-four participants with no previous experience with mediating were randomly assigned to one of four conditions: an 8-week mindfulness meditation class, compassionate meditation class, improvisational theater class, or a no class control group. After eight weeks, participants in the meditation conditions valued calm affective states significantly more than participants in the control conditions. However, based on the participants' daily logs, which were collected during the 8-week study period, participants in the meditation conditions did not report any changes in their actual experiences of calmness when compared to the other conditions. The researchers concluded that meditation selectively increased the value individuals placed on calmness (LAP states) but did not alter their actual experiences. Therefore, one can conclude that ideal affect is influenced more by cultural institutions and cultural socialization than by actual affect.

Having provided the background and the empirical research on ideal affect and the two cultural values, LAP and HAP, another area of research relevant to cultural socialization is locus of control. The background and the empirical research on locus of control is presented next.

### *Locus of Control*

The second area of cultural research explored as being relevant to the differential use of emotion-regulation strategies is locus of control. This section defines the term locus of control and then evidence is presented that details cultural socialization's influence on the values associated with locus of control.

When it was first conceptualized, the term locus of control (LOC) referred to how an individual makes causal attributions regarding the occurrence of events and the outcomes of those events. Individuals with an *internal* LOC perceive outcomes as resulting from their own actions, beliefs, and characteristics. Individuals with an *external* LOC perceive events as resulting from outside forces, such as other people and chance (Rotter, 1966). Over the years, cross-cultural research scholars have refined the concept of control; for members of European American cultures, having control over one's life is consistent with cultural norms of independence and self-reliance, emphasizing internal LOC (see e.g., Morling & Kitayama, 2008; Tsai, Miao, et al., 2007). Control is conceptualized as the need to assert influence (i.e., have an impact or induce a change) on a situation in an effort to fulfill an individual's own needs (Morling et al., 2002; Triandis, 1995; Weisz et al., 1984). Members of East Asian cultures, which are characterized by interdependence and harmony (Brewer & Chen, 2007), tend to perceive events as being the result of outside forces (Morling & Evered, 2006). For members of East Asian cultures, control is conceptualized as one's ability to accept and adjust by making efforts to fit into their environment (Morling et al., 2002; Triandis, 1995; Weisz et al., 1984).

In one cross-cultural study, participants were asked to recall times in their lives when they influenced or adjusted to others (Morling et al., 2002). On average, Japanese college students were able to recall more times when they adjusted to others than American college students, who were able to recall more instances where they had influenced others (Morling et al., 2002).

Locus of control includes the study of two cultural values: preference to influence interpersonal situations and preference to adjust to interpersonal situations. In the next section hypotheses regarding cultural values from ideal affect and locus of control are provided.

### *Hypotheses on the Influence of Cultural Socialization on Cultural Values*

Based on the literature review on ideal affect and locus of control, the following four hypotheses are presented. These hypotheses are organized by the influence American cultural socialization has on cultural values and then the influence Chinese cultural socialization has on cultural values.

**H1**: Individuals socialized in the American culture will value HAP states more than individuals socialized in the Chinese culture.

**H2**: Individuals socialized in American culture will prefer to assert influence during interpersonal interactions with friends, in contrast to individuals socialized in the Chinese culture.

**H3**: Individuals socialized in Chinese culture will value LAP states more than individuals socialized in the American culture.

**H4**: Individuals socialized in Chinese culture will prefer to adjust themselves to fit in during interpersonal interactions with friends in contrast to individuals socialized in the American culture.

Thus far in this chapter, differences between the socialization of Chinese and American individuals have been explored through the lens of two areas of research: ideal affect and locus of control. In the next section, I present evidence on how each of the cultural values from ideal affect and locus of control areas of research influence the mindfulness and reappraisal emotion-regulation strategies.

## The Effect of Cultural Values on Mindfulness and Reappraisal Strategies

This section discusses the influence that cultural values have on reappraisal and mindfulness. More specifically, evidence is presented for (1) how preferences for HAP affect

and a preference for influencing others in interpersonal relationships effects the use of reappraisal; (2) how preferences for LAP affect and preferences towards adjusting to interpersonal relationships effect the use of mindfulness.

### *Cultural Values that Influence Reappraisal*

The cultural values HAP and preference to influence interpersonal situations predict the use of reappraisal emotion-regulation strategy. Emotion-regulation strategies can serve "clearly specified functions, prioritizing and organizing ongoing behaviors in ways that optimize the individual's adjustment to the demands of the physical and social environment" (Keltner & Gross, 1999, p. 468). Therefore, one's preference for a HAP affect state is achieved by using the correct emotion-regulation strategy. The difference between ideal affective states, HAP and LAP, is the level of arousal. American individuals who value HAP states can increase their physiological arousal via the reappraisal strategy. Reappraisal can alter one's appraisal of a situation, elevating one's arousal levels. Therefore, the following relationship between ideal affect and reappraisal is proposed:

> **H5:** Individuals who value HAP affective states are more likely to use reappraisal emotion-regulation strategies than mindfulness emotion-regulation strategies.

The second cultural factor that predicts reappraisal is the preference to influence interpersonal situations. Researchers have suggested that influence requires a form of action, resulting in increased physiological arousal; action is associated with influence (e.g., one is more likely to initiate conversation, acts, and gestures; Galinsky et al., 2003; Maricchiolo et al., 2011; Moskowitz, 1994; Richins, 1983). For example, to influence could mean to be assertive. An assertive individual "expresses [their] feelings and behaviors directly" in an effort to obtain information, initiate interactions, and express dissatisfaction (Polyorat et al., 2012, p. 739). When

reappraising a situation, a person can change their thinking to alter their emotional response, allowing them to better meet their goals of exerting influence over others. Therefore, if an individual's goal is to influence their environment, then utilizing reappraisal can help that individual meet their goals. Thus, the following hypothesis is proposed:

**H6:** Individuals who prefer to influence interpersonal situations are more likely to use reappraisal emotion-regulation strategies than mindfulness emotion-regulation strategies.

***Cultural Values that Influence Mindfulness***

The second emotion-regulation strategy, mindfulness, can be predicted by the cultural values LAP and preference to adjust in interpersonal situations. Below is a discussion of LAP followed by a discussion of the preference to adjust.

Chinese individuals who value LAP states are expected to use mindfulness, as it results in the suspension of immediate reactions to an emotional stimulus. Mindfulness requires an individual to have heightened awareness of their situational context and accept the elements of that situation without alteration or attachment (Chambers et al., 2009). This detached acceptance results in lower arousal. To test the effects of mindfulness on arousal, Jones and colleagues conducted an experiment with 60 participants who were randomly assigned to a 3-week mindfulness training course; participants were measured on their daily emotional experiences with respect to both valence and arousal (Jones et al., 2018). Results from the regression analysis indicated that participants in the mindfulness interaction group indicated feeling greater lower arousal emotions, such as calmness ($b = .02$, $SE = .01$, $p = .002$) and quietness ($b = .02$, $SE = .01$, $p < .001$) compared to members of the control group who received no mindfulness training (Jones et al., 2018). Given the relationship between mindfulness and arousal, the following hypothesis is proposed:

**H7:** Individuals who value LAP affective states are more likely to use mindfulness emotion-regulation strategies than reappraisal emotion-regulation strategies.

Morling and Evered (2006) define secondary control in terms of how one adjusts to and accepts the circumstances of a situation. The researchers collected data from 53 studies on secondary control and concluded that "in a culture that fosters an interdependent view of self, people may more often use … secondary control, [accepting and] adjusting their own preferences to the reality of the situation" (Morling & Evered, 2006, p. 289). Like mindfulness, acceptance requires an individual to have heightened awareness of the situational context and accept the elements of the situation without alteration or attachment (Chambers et al., 2009). Mindfulness research shows that individuals exhibit greater flexibility in their ability to adopt processing strategies when faced with novel or unexpected situations (Moore & Malinowski, 2009). This increase in mental flexibility resulting from the practice of mindfulness affects one's ability to adjust to situations (Moore & Malinowski, 2009). As individuals with interdependent self-construal adhere to acceptance and adjustment as a type of control, mindfulness is consequently an ideal and valuable tool for regulating emotions (Morling & Evered, 2006). Thus, when individuals aim to adjust to others and accept a situation, they adopt a mindful emotion-regulation approach.

**H8:** Individuals who prefer to adjust themselves to fit in during interpersonal situations are more likely to use mindfulness emotion-regulation strategies than reappraisal emotion-regulation strategies.

**Regulating Emotions as Measured by Emotional Dimensions**

Cultural socialization transmits values associated with ideal affect and locus of control, giving meaning to, and thus affecting the utilization of mindfulness and reappraisal emotion-

regulation strategies. This section presents the effects that both types of emotion-regulation strategies have on individuals' emotions. First, the dimensional model of emotions used in this research is described. Second, a review of four emotional dimensions and how the strategies differ in their effects on the four emotional dimensions is discussed.

This research conceptualizes emotions as dimensions as opposed to utilizing a discrete model of emotions (see Barrett, 1998 for a review on the comparison between dimensional and discrete models of emotions). The dimensional model of emotions organizes emotional states by underlying factors (Barrett & Russell, 1999; Watson et al., 1999). The dimensional approach is advantageous in cross-cultural research allowing individuals to report their affective experiences on a continuum, which can account for greater cross-cultural variability when measuring emotions shaped by culturally dependent emotion-regulation strategies (Russell, 1991). In contrast, the discrete model of emotions assumes that emotion categories (e.g., happiness, fear, sadness, hostility, guilt, and fear) are pancultural, emotions are categorized similarly in different languages and cultures (Russell, 1991). The discrete model is thus limiting, and the dimensional approach provides a more detailed assessment of affective experiences across cultures.

Specifically, valence, arousal, power, and surprise are four emotional dimensions that are used to analyze the effects that mindfulness and reappraisal emotion-regulation strategies have. Previous research has established valence, arousal, power, and surprise as underlying factors that can be used to assess affective experiences cross-culturally (Russell, 1991; Soriano et al., 2015). The valence dimension contrasts states of displeasure (e.g., sadness) with states of pleasure (e.g., happiness; Barrett, 1998; Mauss & Robinson, 2009). The arousal dimension contrasts states of high arousal (e.g., excited) with states of low arousal (e.g., calm; Barrett, 1998; Frijda, 1986; Mauss & Robinson, 2009). Power refers to an individual's coping ability with respect to an

emotion-eliciting stimulus (Osgood et al., 1975). Lastly, the surprise dimension contrasts states of expectedness and unexpectedness towards an emotion-eliciting stimulus (Scherer et al., 2006).

Both emotion-regulation strategies can be effective at regulating emotions; however, both strategies differ in their approach (Hill & Updegraff, 2012; McRae & Mauss, 2016). Reappraisal is a form of cognitive change where an individual alters how they construe an emotion-eliciting stimulus thus changing the emotions experienced (Gross & John, 2003). For example, an individual initially appraises a stimulus as being uncomfortably sad. They then reevaluate the stimulus, changing the sad emotion to another emotion such as happiness. In contrast, mindfulness involves the detached acceptance of an emotional experience, resulting in no change at the emotional level (Germer, 2005; Kabat-Zinn, 2003). For example, one becomes aware of an uncomfortably sad emotion, accepts the sadness, focuses on the present moment, and manages to nonjudgmentally evaluate the sadness such that the person does not feel uncomfortable as a result of the sad emotion. Therefore, the application of both strategies has different outcomes on the post-regulation emotion an individual experiences. Research explicating the relationship between the emotion-regulation strategies and emotional dimensions (i.e., valence, power, arousal, and surprise) is presented in the following sections. First, the effects of reappraisal on one's emotional dimensions are discussed, followed by the effects of mindfulness on one's emotional dimensions.

### *Reappraisal's Effect on an Individual's Emotional Dimensions*

Cognitive reappraisal is an emotion-regulation strategy that changes an individual's appraisal of a stimulus, thus changing the emotions they experience. Emotional changes stemming from reappraisal can be measured using the four aforementioned dimensions: valence, arousal, power, and surprise. For example, reappraisal training and therapy can result in (1) less

negatively valenced and more positively valenced emotions (Ray et al., 2010); (2) greater feelings of empowerment (Lusk & Melnyk, 2013); (3) less arousal (Giles et al., 2018); and (4) lower levels of surprise (Zhu et al., 2019). Therefore, the following hypotheses on the effects reappraisal has on the four emotional dimensions in the context of regulating uncomfortable emotions are proposed:

**H9a:** Individuals who use reappraisal tactics more frequently will experience less negative valence when faced with an uncomfortable negative stimulus than individuals who use reappraisal tactics less frequently.

**H9b:** Individuals who use reappraisal tactics more frequently will experience greater feelings of empowerment when faced with an uncomfortable negative stimulus than individuals who use reappraisal tactics less frequently.

**H9c:** Individuals who use reappraisal tactics more frequently will experience less arousal when faced with an uncomfortable negative stimulus than individuals who use reappraisal tactics less frequently.

**H9d:** Individuals who use reappraisal tactics more frequently will experience less surprise when faced with an uncomfortable negative stimulus than individuals who use reappraisal tactics less frequently.

### *Mindfulness's Effect on an Individual's Emotional Dimensions*

As an emotion-regulation strategy, mindfulness does not change the emotional dimension an individual experiences. Theoretically, the mindfulness emotion-regulation strategy includes the following elements: (1) awareness, (2) sustained attention on the present moment, and (3) nonjudgmental acceptance (Kabat-Zinn, 2003). Awareness is the conscientious knowledge of oneself, which includes experiences like bodily sensations, thoughts, emotions, and external

stimuli like sights and sounds in one's environment (Brown & Ryan, 2003). Sustained attention refers to paying attention to the stream of incoming internal and external stimuli, prioritizing the present moment (Baer, 2003). Nonjudgmental acceptance is the experiencing of stimuli, including thoughts and emotions, without alteration; in other words, it involves experiencing stimuli without judging whether they are good or bad, important or petty, or desirable or undesirable (Germer et al., 2013). Therefore, all experiences of pleasure or pain (i.e. valence), excitement or calm (i.e. arousal), expected or unexpected (i.e. surprise), are accepted without a need to change, control, or avoid them. The only exception is with respect to the emotional dimension, arousal. Theoretical and empirical evidence states that mindfulness practices result in a decrease in arousal as the process of becoming more aware and in the moment results in calmer emotional states that are associated with lower arousal levels (Chambers et al., 2009; Jones et al., 2018). Accordingly, the relationship between the mindfulness emotion-regulation strategy and the regulation of uncomfortable emotions, as measured by the emotional dimensions, is presented in the following hypotheses:

**H10a:** Individuals who are more mindful will experience more negatively valanced emotions when regulating emotions that result from an uncomfortable negative stimulus compared to individuals who are less mindful.

**H10b:** Individuals who are more mindful will experience less power when regulating emotions that result from an uncomfortable negative stimulus compared to individuals who are less mindful.

**H10c:** Individuals who are more mindful will experience less arousal when regulating emotions that result from an uncomfortable negative stimulus compared to individuals who are less mindful.

**H10d:** Individuals who are more mindful will experience more surprise when regulating emotions that result from an uncomfortable negative stimulus compared to individuals who are less mindful.

**Message Congruency as a Moderator that Predicts Emotions**

Thus far, the research that has been presented in this dissertation supports the cultural differentiation of emotion-regulation strategies. Furthermore, both mindfulness and reappraisal have been hypothesized to be effective in regulating emotions in their own respective manners. However, under what conditions will emotion-regulation strategies be effective? One such condition is explored in the context of interpersonal communication. This next chapter discusses interpersonal emotion regulation and congruency theory, which suggest that understanding a person's inclination towards a specific emotion-regulation strategy – as determined by culture – can be valuable insight, for example, in the context of social support.

Interpersonal emotion regulation occurs when an individual is motivated to help another person improve their emotional state (Goetz et al., 2010). Individuals can attempt to help regulate others' emotions through empathic, supportive, and prosocial behaviors (Thoits, 1996). Interpersonal emotion regulation is important because emotion regulation can be influenced by interpersonal interactions; such influence can affect the social support one receives in a variety of contexts, including experiencing depression (Marroquín, 2011), athletic performance (Friesen et al., 2013), romantic relationships (Debrot et al., 2013), and leadership in the work environment (Vasquez et al., 2021).

However, it is important to determine the types of messages that are effective in the context of interpersonal emotion regulation. This dissertation draws on congruency theory to explore what effective interpersonal emotion-regulation messaging may look like.

Congruence is defined as the "extent to which the content of [an] intervention (e.g., message, value, or emotion) complements the recipient's existing states and traits" (Halperin & Schori-Eyal, 2020, p. 5). Accordingly, in helping person "A" regulate person "A"'s own emotions, suggesting strategies that are congruent with preferences for regulation would be most effective in helping this person regulate these emotions. Congruent messaging takes into consideration people's communication preferences to craft strategic messages that are more persuasive. For example, the literature on persuasive health communication suggests that health messages are more persuasive if the messages are culturally congruent with the targeted population's culture (Resnicow et al., 1999). Congruency effects have also been studied in cross-cultural marketing campaigns, suggesting that messages that align with an audience's cultural predispositions (e.g., values, attitudes, and behaviors) result in more financially profitable campaigns (e.g., Murphy et al., 2013; Prendergast & Hwa, 2003; Zhang & Neelankavil, 1997).

Given that individuals tend to be more responsive to messages that are congruent with their own values and beliefs (Zhang & Gelb, 1996), messaging should be congruent with the message receivers' inclination towards an emotion-regulation strategy as determined by their culture to ensure the interpersonal emotion regulation is effective. In other words, if an induvial indicates using more reappraisal tactics, then the individual will be more receptive to interpersonal messaging that is in-line with reappraisal tactics. Alternatively, if an individual uses more mindfulness, then the individual will be more receptive to messaging from other's that is in-line with mindfulness tactics. Therefore, the following hypotheses is proposed:

**H11a-d:** Individuals who receive congruent emotion-regulation messages will better be able to regulate their emotions (as measured by all four of the emotional dimensions: valence, power, arousal, and surprise) than will individuals who receive incongruent

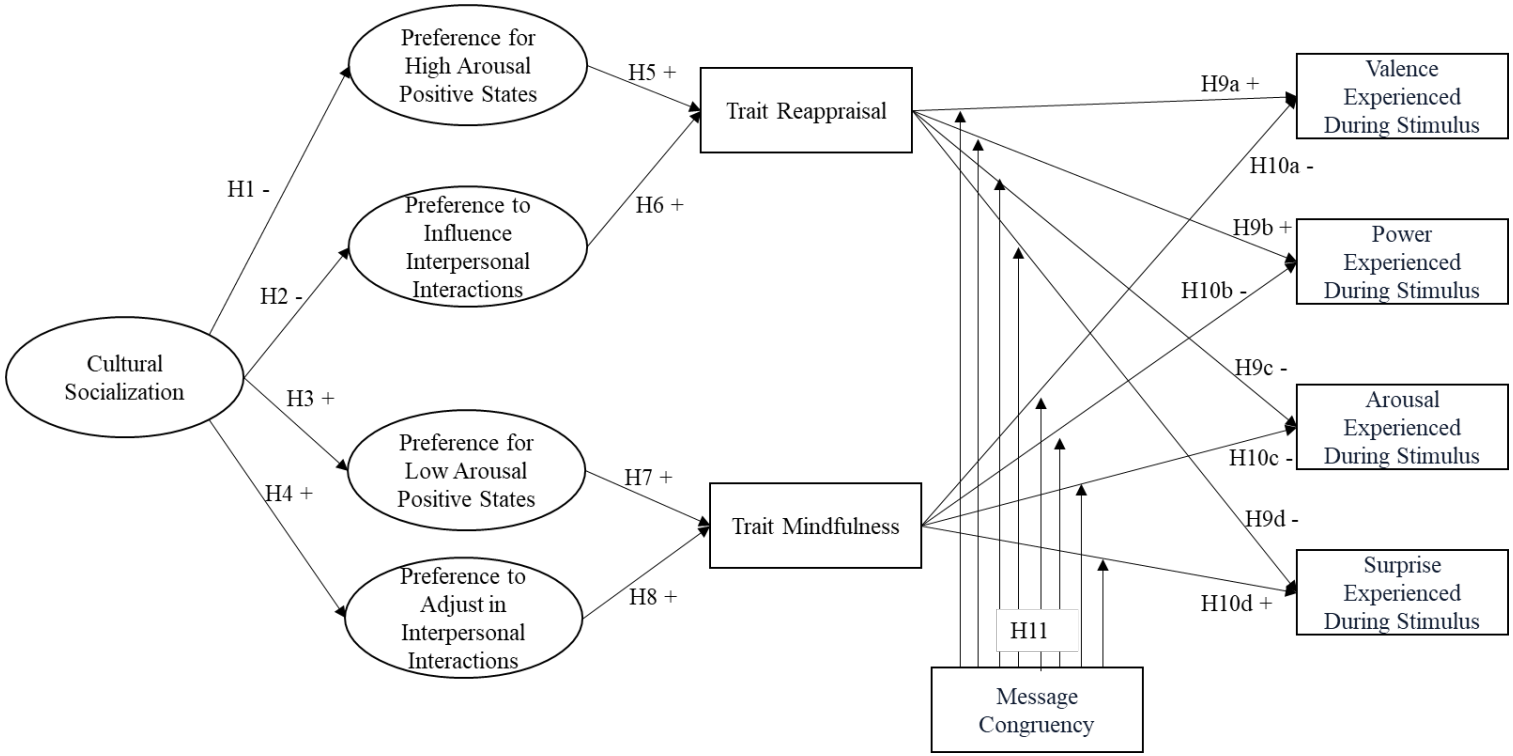
messaging. Specifically, individuals who prefer to be mindful in their daily lives will better be able to regulate their emotions if provided with emotion-regulation messages that promote mindfulness tactics. Similarly, individuals who prefer to use a reappraisal strategy to regulate their emotions will better be able to do so if provided with emotion-regulation messages that promote reappraisal tactics.

# Chapter 4: Model

This dissertation has presented arguments on why and how cultural socialization influences cultural values thus resulting in the differential adoption of emotion-regulation strategies. Research suggests that individuals socialized in the American culture value HAP states and have greater preferences to influence interpersonal situations. These cultural values shape members of the American culture group's preference for the reappraisal emotion-regulation strategy. In contrast, individuals socialized in the Chinese culture value LAP states and prefer to adjust in interpersonal situations. These cultural values shape members of the Chinese cultural group's preference for mindfulness as an emotion-regulation strategy. Individuals who are better at utilizing reappraisal can effectively alter the emotions they experience, as measured by the emotional dimensions, valence, arousal, power, and surprise. However, individuals who are better at utilizing mindfulness become more aware and accepting of their emotions and thus are not motivated to change their emotions. Lastly, individuals would be more effective at regulating their emotions if presented with interpersonal emotion-regulation messaging that is congruent with their preference for either mindfulness or reappraisal. Figure 1 offers a structural equation model used to test hypotheses presented in Chapter 3.

**Figure 1**

*Structural Equation Model of How Cultural Socialization Shapes Emotion-Regulation Strategies and their Effectiveness*




*Note.* This is a model of cultural socialization's influence on emotion-regulation strategies. Cultural socialization is an exogenous latent factor. Preference for high arousal positive states, preference for low arousal positive states, preference to influence, and preference to adjust are endogenous latent factors. Mindfulness, reappraisal, valence experienced, power experienced, arousal experienced, and surprise experienced are endogenous variables. The moderating variable, message congruency (of emotion-regulation strategies), represents a set of interaction terms: state mindfulness, State Mindfulness × Trait Mindfulness, state reappraisal, and State Reappraisal × Trait Reappraisal.[2] In the model higher scores for Cultural socialization indicate Chinese cultural socialization whereas lower scores indicate American cultural socialization. Hypotheses that include reappraisal are represented as H9. Hypotheses that include mindfulness are designated as H10. The + indicates a positive relationship and – indicates a negative relationship.

# Chapter 5: Pilot Studies

This chapter will discuss sampling, procedures, and the results of Pilot Studies 1, 2, and 3, and how the pilot studies informed the sampling and procedure for the main study. The goal of the first pilot study is to create reappraisal and mindfulness emotion-regulation instructional messages to be used for the manipulation in the main study. The second pilot study tested for stimulus equivalence between American and Chinese participants' by analyzing the validity and reliability of the negatively valenced emotions elicited by a distressing video. The third pilot study tested whether Chinese participants indicate greater trait mindfulness then American participants.

All participants completed an IRB-approved consent form, a demographic questionnaire, and were presented with a debriefing upon completion of the study (Appendix A for the IRB Consent form & Appendix B for the demographic questionnaire).

**Pilot Study Participants**

Participants were undergraduate and graduate students at the University of Maryland, College Park. In the main study of this research, cultural socialization is used to distinguish between Chinese and American culture groups. Cultural socialization, as assessed by a measure of multi-item ethnicity measure, was part of the theoretical framework regarding the cultural dependence of emotion regulation strategies. However, in Pilot Studies 1-3, dichotomous distinctions between European American and Chinese East Asian cultural groups were made using a demographic questionnaire. In the demographic questionnaire, participants were asked to report their gender, age, ethnicity, race, years in school, socioeconomic status, and where they were born and raised, in addition to several other questions (see Chapter 6 *Instruments* section). Participants self-identification on questions of ethnicity and race determined their cultural group.

Participants were only allowed to select one answer. If participants have associations with northern or western regions of Europe or one of the former British colonies, along with racially self-identifying as European American (could also indicate “Caucasian” or “White”), they would be categorized as European American (cf. Bhopal & Donaldson, 1998).

International Chinese students were recruited who ethnically and racially identify as East Asian and have been born and spent most of their life in China. For the East Asian cultural group, international students instead of Asian American students were recruited to limit acculturation effects due to extended time in the United States. Additionally, out of recruiting convenience and logistics (e.g., time and monetary compensation), Chinese international students were recruited for the study; relative to other international students, Chinese international students are the largest group of graduate and undergraduate applicants admitted each year to the University of Maryland College Park (roughly 1,530 international Chinese students enroll each year from a total of 4,270 international students; University of Maryland International Student and Scholar Services, 2021).

The pilot studies used a convenience sample. Members of the European American culture group were recruited through an extra credit incentive for their Communication classes. The international Chinese student sample was recruited through university organizations like International Student and Scholar Services and the snowball effect in which research participants were permitted to forward the recruitment message to other potential subjects. International Chinese students were incentivized by having their name entered into a raffle to win a $100 gift card, chances of winning were 10%.

## Pilot Study 1

The goal of Pilot Study 1 is to create emotion-regulation instructions of reappraisal and mindfulness to be used in the main study. This was achieved in three parts. In the first part, emotion-regulation instructions in both English and Mandarin were created, and measures of state mindfulness and state reappraisal were translated to Mandarin. The second part tested the measurement invariance between American and Chinese participant responses for the state mindfulness and state reappraisal measures when presented with the emotion-regulation instructions from Part 1. In Part 3, interviews were conducted with both American and international Chinese students regarding the emotion-regulation instructions to provide insight into how the instructions were being processed and understood.

### *Pilot Study 1 Part 1*

Three instructions were created: mindfulness, reappraisal, and control (see Appendix C). All the instructions were created from theory, previous research, and in collaboration with research assistants who identify as Chinese and who considered Chinese their first language and English their second language. The instructions were simultaneously created in English and Mandarin to ensure they are culturally relevant. Brislin's procedures for back-translation (1970) were used on the Mandarin version; a native Mandarin speaker not involved with the project translated the Mandarin version of the instructions back to English. Any discrepancies between the versions were discussed and resolved by members of the research team.

The mindfulness instructions were intended to instruct participants to use the mindfulness tactics of becoming more aware and unattached to their emotions. The reappraisal instructions intended to instruct participants to change the way they appraise a stimulus in efforts to change their emotions. Lastly, the control instructions were included to assess the emotions elicited

when no instructions regarding emotion regulation are provided. The control instructions were intended to be a more naturalistic recording of emotions when no manipulation is presented, such that participants' emotional experiences can be compared to participants who were explicitly asked to use mindfulness or reappraisal emotion regulation.

Additionally, two measures were translated to Mandarin using Brislin's (1970) procedures for translation and back-translation: (1) The state Mindful Attention Awareness Scale (MAAS State) is used to measure the extent that participants are mindfulness when instructed to do so during the stimulus video. The scale was adopted from the state Mindful Attention Awareness Scale by Tanay and Bernstein (2013); instructions for the scale were altered so they referenced the emotion-eliciting video participants watched during the study. (2) The state Emotion Regulation Questionnaire (ERQ State) is used to measure the extent that participants utilized reappraisal tactics when instructed to do so during the stimulus video. The scale was adopted from the trait Emotion Regulation Questionnaire (ERQ Trait; Gross & John, 2003). The instructions were altered, such that they reference the emotion-eliciting video. The trait version of ERQ measures how often participants use reappraisal tactics in their daily lives and the state version of ERQ measures how well participants use reappraisal tactics while watching the stimulus video. See Chapter 6 *Instructions* section of this research for more information on the state and trait mindfulness and reappraisal measures.

***Pilot Study 1 Part 2***

Part 2 of Pilot Study 1 serves as a manipulation check, showing if the created emotion-regulation instructions alter participants' regulation strategy as intended. It was expected that participants would score higher on the state mindfulness measure (MAAS State) when they received mindfulness instructions compared to reappraisal instructions. Similarly, participants

were predicted to score higher on the state reappraisal measure (ERQ State) when they received reappraisal instructions as compared to those given mindfulness instructions.

**Procedures.** European American and Chinese participants were recruited for the study. Participants were randomly assigned to one of the emotion-regulation instructions (reappraisal, mindfulness, or control) and then shown a graphic bullying video (duration of 1 minute and 9 seconds). After the video, participants' ability to regulate their emotions was measured using state mindfulness and reappraisal measures, which were presented in a random order to each participant to prevent order effects. Everyone completed both the state mindfulness measure and state reappraisal measure. Using the G*Power calculator a sample size of 171 was estimated assuming a small effect size (.25), error probability of .05, and a power of .90 with six groups (Faul et al., 2007). A small effect size was used for estimation, erring on the side of caution as the emotion-regulation instructions being tested were created in Part Study 1 Part1; there exist no previous research to guide effect size estimation when testing for the effectiveness of the instructions.

**Factor Analysis.** To explore the factor structure of state Mindful Attention Awareness Scale in our sample, the five items of the instrument were subjected to an exploratory factor analysis (EFA) with oblique rotation.[3] An EFA was used because the state mindfulness and state reappraisal scales were created to fit the study procedures; accordingly, the possible underlying factors for the scales needed to be explored for both the American and Chinese culture groups. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .87. Bartlett's test of sphericity $\chi^2$ (10, $N$ = 116) = 167.84, $p$ < .001, indicated that the correlation structure was adequate for factor analysis. Maximum likelihood factor analysis with a cutoff point of .40 and the Kaiser's criterion of eigenvalues greater than 1 yielded a one-factor solution

as the best fit for the data, accounting for 64.52% of the variance. The results of this factor analysis are presented in Table 1. The Cronbach's alpha and omega for state Mindful Attention Awareness Scale items was .86 and thus were averaged together for a single score.

**Table 1**

*Pilot Study 1: Results from a Factor Analysis of State Mindful Attention Awareness Scale (MAAS State)*

| MAAS State Items | Factor loadings |
|---|---|
| I was watching the video without paying attention. | **.85** |
| I was preoccupied with the future or past. | **.82** |
| I was rushing though the video without being really attentive to it. | **.80** |
| I was finding it difficult to stay focused on what was happening. | **.79** |
| I was watching the video automatically, without being aware of what I was doing. | **.76** |
| Alpha | .86 |
| Omega | .86 |
| % of Variance Explained | 64.52 |
| Eigenvalue | 3.23 |

*Note.* $N = 116$. The factor analysis with an oblique (Oblimin with Kaiser Normalization) rotation extraction method was used. Factor loadings above .70 are in bold. Factor analysis is based on a correlation matrix.

To explore the factor structure of ERQ State in our sample, all 6 items of the instrument were subjected to an exploratory factor analysis with oblique rotation (see Footnote 3). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, KMO = .86. Bartlett's test of sphericity $\chi^2$ (15, $N = 120$) = 357.70, $p < .001$, indicated that the correlation structure was adequate for factor analyses. Maximum likelihood factor analysis with a cutoff point of .40 and the Kaiser's criterion of eigenvalues greater than 1 yielded a one-factor solution as the best fit for the data, accounting for 65.93% of the variance. The results of this factor analysis are presented in Table 2. The Cronbach's alpha and omega for ERQ State was .90 and thus were averaged together for a single score.

**Table 2**

*Pilot Study 1: Results from Factor Analysis of State Emotion Regulation Questionnaire (ERQS)*

| ERQS Items | Factor loadings |
|---|---|
| When I wanted to feel more positive emotion, I changed the way I was thinking about the situation. | **.87** |
| When I wanted to feel more positive emotion (such as joy or amusement), I changed what I was thinking about. | **.83** |
| When I wanted to feel less negative emotion, I changed the way I was thinking about the situation. | **.83** |
| I controlled my emotions by changing the way I thought about the situation. | **.82** |
| When I wanted to feel less negative emotion (such as sadness or anger), I changed what I'm thinking about. | **.80** |
| When I was faced with a stressful situation, I made myself think about it in a way that helped me stay calm. | **.72** |
| Alpha | .90 |
| Omega | .90 |
| % of Variance Explained | 65.93 |
| Eigenvalue | 3.96 |

*Note.* $N = 120$. A factor analysis with an oblique (Oblimin with Kaiser Normalization) rotation extraction method was used. Factor loadings above .70 are in bold. Factor analysis is based on a correlation matrix.

**Descriptive Statistics.** State Mindful Attention Awareness Scale (MAAS State) score for the culture groups and instructions administered appeared to violate the assumption of a relatively normal distribution of the population as determined by the Shapiro-Wilk test ($p < .05$), and visual inspection of their histograms, normal Q-Q and box plots, and their significant skewness and kurtosis values (see Table 3). Levene's test for equality of variances is not significant and therefore equal variances between groups can be assumed, $F(5, 110) = 2.20$, $p = .06$. The positively skewed state Mindful Attention Awareness Scale measure was transformed. After a trial and error of transformations in line with Fink (2009), data was transformed using the formula, $Y^* = \ln(Y+.5)$ where Y is the original variable, Y* is the transformed variable, ln is the natural logarithm, and .5 is a constant. A majority of MAAS State transformed scores for the culture groups and instructions administered were relatively more normally distributed then the untransformed data as determined by the Shapiro-Wilk test ($p > .05$) and visual inspection of the

plotted residuals and the skewness and kurtosis values (see Table 3). Levene's test for equality of variances is not significant and therefore equal variances between groups can be assumed, $F(5, 110) = 0.82$, $p = .54$. Descriptive statistics of the transformed MAAS State measure can also be found in Table 3, labeled MAAS State Transformed. State Emotion Regulation Questionnaire (ERQ State) scores for the culture groups and the instructions administered had absolute skewness and kurtosis scores below one suggesting the relative normality of the data. Descriptive statistics of the ERQ State measure can also be found in Table 3, labeled ERQ State.

**Table 3**

*Pilot Study 1: Descriptive Statistics for State Mindful Attention Awareness Scale (MAAS State) and State Emotion Regulation Questionnaire (ERQ State)*

| | | | *N* | *M* | *SE* | *SD* | Skewness (*SE*) | Kurtosis (*SE*) | Shapiro-Wilk test |
|---|---|---|---|---|---|---|---|---|---|
| MAAS State | Culture | Chinese | 51 | 2.86 | 0.20 | 1.45 | 0.72 (0.33) | 1.12 (0.66) | $W$ (51) = 0.95, $p$ = .04 |
| | | American | 65 | 1.82 | 0.12 | 0.94 | 1.39 (0.30) | 2.83 (0.59) | $W$ (65) = 0.88, $p$ < .01 |
| | Instructions | Reappraisal | 39 | 2.14 | 0.19 | 1.19 | 0.89 (0.38) | 0.32 (0.74) | $W$ (39) = 0.92, $p$ < .01 |
| | | Mindfulness | 47 | 2.40 | 0.20 | 1.38 | 1.05 (0.35) | 1.59 (0.68) | $W$ (47) = 0.93, $p$ < .01 |
| | | Control | 30 | 2.26 | 0.24 | 1.32 | 1.67 (0.43) | 4.39 (0.83) | $W$ (30) = 0.86, $p$ < .01 |
| MAAS State Transformed using Natural Log Equation | Culture | Chinese | 51 | 1.11 | 0.07 | 0.48 | -0.74 (0.33) | 0.83 (0.66) | $W$ (51) = 0.96, $p$ = .06 |
| | | American | 65 | 0.77 | 0.05 | 0.37 | 0.42 (0.30) | -0.46 (0.59) | $W$ (65) = 0.95, $p$ = .01 |
| | Instructions | Reappraisal | 39 | 0.88 | 0.07 | 0.44 | 0.13 (0.38) | -0.87 (0.74) | $W$ (39) = 0.97, $p$ = .29 |
| | | Mindfulness | 47 | 0.95 | 0.07 | 0.48 | -0.24 (0.35) | -0.05 (0.68) | $W$ (47) = 0.98, $p$ = .42 |
| | | Control | 30 | 0.92 | 0.08 | 0.44 | 0.34 (0.43) | -0.27 (0.83) | $W$ (30) = 0.96, $p$ = .26 |
| ERQ State | Culture | Chinese | 54 | 4.56 | 0.21 | 1.57 | -0.78 (0.33) | -0.13 (0.72) | $W$ (54) = 0.92, $p$ < .01 |
| | | American | 66 | 3.58 | 0.17 | 1.38 | -0.07 (0.30) | -0.52 (0.58) | $W$ (66) = 0.98, $p$ = .39 |
| | Instructions | Reappraisal | 41 | 4.33 | 0.21 | 1.33 | -0.47 (0.37) | -0.33 (0.72) | $W$ (41) = 0.97, $p$ = .25 |
| | | Mindfulness | 48 | 3.92 | 0.24 | 1.67 | -0.42 (0.34) | -0.73 (0.67) | $W$ (38) = 0.95, $p$ = .02 |
| | | Control | 31 | 3.68 | 0.28 | 1.56 | 0.40 (0.24) | -0.65 (0.82) | $W$ (31) = 0.95, $p$ = .19 |

*Note.* The table includes descriptive statistics for the raw and transformed MAAS State and ERQ State scales, categorized by culture and instructions.

**ANOVA**. A 2 x 3 ANOVA was used to examine mindfulness ability by culture (i.e., Chinese and American) and the type of instructions administered (i.e., reappraising, mindful, or control). There was no statistically significant interaction, $F(2,116) = 0.56$, $p = .57$, or main effect for instructions, $F(2, 116) = 0.24$, $p = .78$. There was a statistically significant main effect for culture $F(1, 116) = 18.94$, $p < .001$: Chinese participants had higher mindfulness scores ($M = 1.11$, $SD = 0.48$) than American participants ($M = 0.77$, $SD = 0.37$).

A 2 x 3 ANOVA was used to examine reappraisal ability by culture (i.e., Chinese and American) and the type of instructions administered (i.e., reappraising, mindfulness, or control). There was no statistically significant interaction $F(2,118) = 1.43$, $p = .25$, or main effect for instructions, $F(2, 117) = 1.63$, $p = .20$, $d = .03$. There was a statistically significant main effect for culture, $F(1, 118) = 13.55$, $p < .001$, $d = .10$: Chinese participants had higher reappraisal scores ($M = 4.56$, $SD = 1.57$) than American participants ($M = 3.58$, $SD = 1.38$). Levene's test for equality of variances was not significant and therefore equal variances between groups was assumed for the instructions administered, $F(2, 117) = 1.26$, $p = .29$, and culture, $F(1, 118) = 0.48$, $p = .49$.

It was hypothesized that the instructions administered would affect mindfulness and reappraisal ability reported by participants; such that, participants in the condition who receive mindfulness instructions would report higher state mindfulness scores and participants in the reappraisal condition who received reappraising instructions would report higher state reappraisal scores. This effect was not found. Additionally, it was hypothesized that reappraisal ability would differ by culture such that Americans would score higher on the reappraisal scale and Chinese would score higher on the mindfulness scale. Only partial support for culture was found such there was a significant difference of culture but it was such that Chinese scored

significantly higher on both reappraisal and mindfulness measures compared to Americans. These mixed results are further explored in Pilot Study 1 Part 3 below.

***Pilot Study 1 Part 3***

In efforts to clarify the mixed results obtained from Pilot Study 1 Part 2, interviews were conducted to understand how participants were interpreting the instructions.

**Procedure.** All participants provided IRB consent and the interviews were recorded and transcribed. Interviews took an average of 30 minutes to complete. Participants were first asked to read the emotion-regulation instructions and after each instruction provide a summary of what they believed the instructions (reappraisal, mindfulness, and control) were asking them to do. The items were randomized such that the order in which the participants read the instructions was random. After reading all three instructions, participants were asked to clearly articulate the distinguishing factors between the instructions as well as any constructive criticism on how to improve the instructions.

Question format was semi-structured, where an outline for the interview was the foundation for a guided conversation (see Appendix D). The participants and researcher had the freedom to ask additional and tangential questions that were assessed relevant by the researcher.

**Results.** Participants were instructed to read the reappraisal, mindfulness, and control instructions one at a time. After reading one set of instructions, the interviewees were asked to summarize their interpretation of the instructions in their own words. Along with articulating the instruction's clarity, participants distinguished key takeaways relative to the other two instructions the participants had read. The reappraisal instructions were meant to highlight the need to change one's thinking to regulate their emotions. The mindfulness instructions were meant to highlight the need to become aware and feel their emotions as they occur. The control

instructions were meant to ask participants to watch the video without providing any guidelines on how to watch the video or regulate their emotions.

After interviewing 12 participants, 6 Chinese and 6 American, it was evident that the control instructions resulted in participants being hyper focused on the wording that indicated that the video may be stressful. All three instructions started with the phrase, "On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort." However, only the summaries after the control instructions focused on the negative emotion that the video will elicit. For example, a participant summarized the control instructions stating, you're going to see a video and it will make you sad and maybe you'll feel uncomfortable but please try to watch the whole thing." Similarly, another participant summarized the instructions by stating, "[The video] will make me feel stressed, but I will have to watch the whole thing." The control instruction inadvertently drew interviewees to focus more on their emotions, and how they must watch the video regardless of their emotional discomforts. In contrast, interviewees' summaries for the other instructions, as intended, focused on what to do with their emotions (either change them or experience them fully) and not on how the video would be discomforting. In summary, the goal of the reappraisal, mindfulness, and control instructions was not how the video will cause negative emotions; however, that is the takeaway interviewees indicated in their summaries of the control instructions.

Additionally, interviewees indicated that the instructions were forceful and thought that the time stamp of the video was a key takeaway. For example, participants summarized the control instructions to mean, "I am *forced* to watch a video. Like I must watch it till the last second"; "I think [the instructions] just *forces* me to watch the video;" "This one is asking about

the timing of the study. And you know once this amount of time had pass, it is less about the emotions and your mental response to it." The idea that the instructions were "forcing" participants to watch the entire video was not mentioned in any of the summaries for the reappraisal or mindfulness instructions.

In summary, the control instructions ended up drawing more attention to one's emotions and the unintentional "forcefulness" of needing to watch the entire video. The idea that more attention be given to emotions has the potential to be confused with the mindfulness instructions that are also asking participants to pay attention to their feelings as they experience them fully. And watching the entire video is not a point of contention except that it's not a takeaway expressed by interviewees when they summarized the other two conditions. Therefore, being exposed to the control condition instructions created an alternative experience for participants, instead of being control instructions that resulted in a baseline measure reflecting a *no instruction* control group.

***Takeaways from Pilot Study 1***

Pilot Study 1's goal was to determine whether the emotion-regulation instructions predicted the participants' ability to regulate their emotions using regulation techniques that coincided with the instructions assigned. In other words, the instructions were created to encourage participants to receive negative affect stimuli (information) either mindfully or with the aim to use reappraisal tactics. The effectiveness of the instructions (messages) that were designed to prime interpretive processes within participants were tested in Pilot Study 1. The emotion regulation instructions created in Pilot Study 1 were created to reflect messaging that individuals may receive during interpersonal interactions where one may attempt to influence emotions in others.

The instructions did not predict emotion-regulation techniques; however, unexpectedly, culture predicted participant's use of mindfulness and reappraisal techniques: Chinese participants were significantly more likely to use both techniques while watching the bullying video compared to American participants who indicated lower scores of reappraisal and mindfulness while watching the bullying video.

Written instructions presented in Pilot Study 1 did not predict the emotion-regulation technique used by participants while watching the control and bullying video. This may be due to passive response and the lack of attention paid by participants to the survey instructions. Therefore, for the main study, I have decided to shorten the length of the original instructions and to bolden key aspects of the text that participants needed to focus on. Additionally, a comprehensive reading quiz will be administered after the instructions to ensure participants understand what is being asked of them. Participants must answer all the manipulation check questions regarding the instructions correctly before being allowed to continue in the study; this was achieved using a Qualtrics response requirement setting. The comprehension quiz and the bolding of key aspects of the instructions should help prevent passive reading and should enhance understanding of what is being asked of the participants.

Additionally, the control instructions will be removed from the main study. Chinese and American participants in the pilot study interviews expressed the main point of the control instructions was to forcefully watch the video for its entire duration. This understanding of the control instructions could be perceived to be like the mindfulness instructions, asking participants to attentively watching the video. Therefore, in the main study the reappraisal instructions will simply be compared to the mindfulness instructions. See Appendix C for final instructions used in the main study.

## Pilot Study 2

The purpose of Pilot Study 2 was to create a video stimulus that elicited similar negatively valenced emotions within and between American and Chinese cultures. Accordingly, Pilot Study 2 was split into two parts. In Part 1, research was conducted on how to create an emotionally stimulating video that could be used cross-culturally. In Part 2, the video was tested for cultural equivalence.

### *Pilot Study 2 Part 1*

Using prior research to conceptualize negative valenced emotions, a video was created that theoretically should elicit the same levels of negative emotions cross-culturally; Pilot Study 2 tests the emotions elicited during the stimulus and control videos for Chinese and Americans participant groups. The decision to elicit negatively valenced emotions was made due to research that suggests the human brain responds more intensely to negative stimuli than positive stimuli (Ito et al., 1998). Negative stimuli are perceived to be more salient, (Jing-Schmidt, 2007; Rozin & Royzman, 2001) resulting in a greater alertness to social cues with more thorough processing, and a greater motivation to act towards change (Baumeister et al., 2001), thus, making negatively valenced emotions easier to experimentally induce (Rozin & Royzman, 2001). The concept of negatively valenced emotions is discussed below.

Films can elicit a range of emotions differing in intensity and valence; however, when choosing a film as a stimulus, researchers must be careful in their selection because films differ in many ways (e.g., color, brightness, intensity, length, number of human figures). Rottenberg et al., (2007) have noted that when using many films in research, “it is impossible to match films across all characteristics, so investigators have to match along a few characteristics that have the highest priority such as activation level and thematic content as it references the goals of the

study" (p. 14). Using these guidelines, a film was created that should elicit the same level of subjective negative valence within and between culture groups.

To stimulate negative valence, the films included themes identified by Lazarus's (1991) appraisal model of emotions. Lazarus created a decision tree as a tool to understand the explanatory logic of appraisals. In the main study of this dissertation, for a film to elicit negative valence, according to the decision tree of appraisals, the following is necessary (Lazarus, 1991):

1. The situation depicted is goal motivated.
2. The situation is inconsistent with what the person wants (goal incongruent).
3. The situation includes a loss to any type of ego-involvement (e.g., esteem, moral values, meaning and ideas, other persons, and their well-being; life goals).
4. The situation is such that no blame can be attributed.
5. The situation includes a loss that cannot be restored or compensated; the person cannot manage the demands of a situation.

The appraisals that result in negative valence have been associated with themes of grief, emptiness, and depression, which all load positively onto the factor of sadness (loadings .73 and above; Harmon-Jones et al., 2016).

Using these appraisals and themes, the goal was to create a video in which images that elicit negatively valenced emotions are depicted. We wanted to use a single film across both cultures that would induce equivalent emotions. The video selected was a compilation of clips depicting school-aged students who are being violently bullied.[4] Various racial backgrounds were depicted to prevent in-group bias due to group membership and categorization effects (Mastro & Atwell Seate, 2012). The film included a string of videos with students who could be perceived to be as young as 10 and as old as 21, and from the following ethnic backgrounds:

European American, East Asian, African, and Middle Eastern. To prevent bad sound quality from interfering with the message of how disheartening bullying and school violence can be, the video was stripped of sound, making it a silent film showing clips of violent acts against students. The film was prefaced with a slide that included a bullying statistic and ended with a "help stop bullying" advertisement. The film was presented allegedly as part of a public service campaign to make participants unaware of the true intentions of the study. The negatively valenced emotion-eliciting video was 1 minute and nine seconds.

A control video is also used in the study to establish baseline emotions. The control video is expected to be neutral in valence as it depicts nature scenes of mountains and valleys. The film was edited to also be one minute and nine seconds long. The sound of the nature video was also stripped to mimic the emotion-eliciting video stimulus created. The control video was adopted from pervious empirical research that similarly used the video in contrast to emotion-eliciting videos (Rottenberg et al., 2007).

***Pilot Study 2 Part 2***

Part 2 of the study was conducted to measure the emotional response American and Chinese participants had to the stimulus (graphic video that is one minute and nine seconds) and control videos (nature scenery that is one minute and nine seconds) created in Pilot Study 2 Part 1. It was expected that there would be no difference in the emotion dimension of valence between the two cultures. Accordingly, American and Chinese scores should load together onto a single factor. Additionally, the stimulus video should elicit greater negative valence as compared to the neutral video.

**Procedure.** American and Chinese participants were instructed to watch the videos created in Pilot Study 2 Part 1. After watching each video (once the neutral and once the stimulus

video), participants completed the PANAS item for the emotion dimension valence ("How would you describe your feelings during the video?" on a scale 1-sad to 9-happy; Watson et al., 1999; see Chapter 6 *Instruments* section for more information). In total four scores were collected: 1) a valence measure for Chinese participants after watching the control video, 2) a valence measure for Chinese participants after watching the stimulus video, 3) a valence measure for American participants after watching the control video, and 4) a valence measure for American participants after watching the stimulus video. Using the G*Power calculator a sample size of 20 per culture group was estimated assuming a medium effect size of .50, error probability of .05, and a power of .90 (Faul et al., 2007). A medium effect size was anticipated considering previous research that used the neutral video (Rottenberg et al., 2007) and the theoretical guidelines that guided the creation of the negatively valence video (Lazarus, 1991).

**Descriptive Statistics.** Valence scores for the culture groups and videos presented appeared to violate the assumption of a relatively normal distribution of the population as determined by the Shapiro-Wilk test ($p < .05$), and visual inspection of their histograms, normal Q-Q and box plots, and their significant skewness and kurtosis values. The negatively skewed Valence measure was transformed. After a trial and error of transformations in line with Fink (2009), data was transformed using the formula, $Y^* = (Y+1)^2$ where Y is the original variable, Y* is the transformed variable. After the transformation the valence scores were relatively more normally distributed then the untransformed data as determined a nonsignificant skew value of .09 ($SE = 0.13$) and a visual inspection of the plotted residuals and the skewness and kurtosis values.

**Statistical Test.** A 2 x 2 ANOVA was used to examine valence elicited by the videos (i.e., control or emotion-eliciting stimulus) and culture (i.e., Chinese or American). There was no

statistically significant interaction $F(1,334) = .49$, $p = .49$, for video by culture (see Figure 2). There was a significant main effect for video, $F(1, 334) = 422.07$, $p < .001$, $d = 2.35$: participants rated the stimulus video ($M = 11.32$; $SD = 6.53$) as more negatively valenced then the control video ($M = 29.77$; $SD = 8.99$). There was a statistically significant main effect for culture, $F(1, 334) = 29.05$, $p < .001$, $d = -.41$: Chinese participants had more negatively valenced scores ($M = 17.03$, $SD = 13.85$) than American participants ($M = 21.94$, $SD = 11.08$). Levene's test for equality of variances was significant and therefore equal variances between groups was not assumed, $F(3, 334) = 38.47$, $p < .001$.

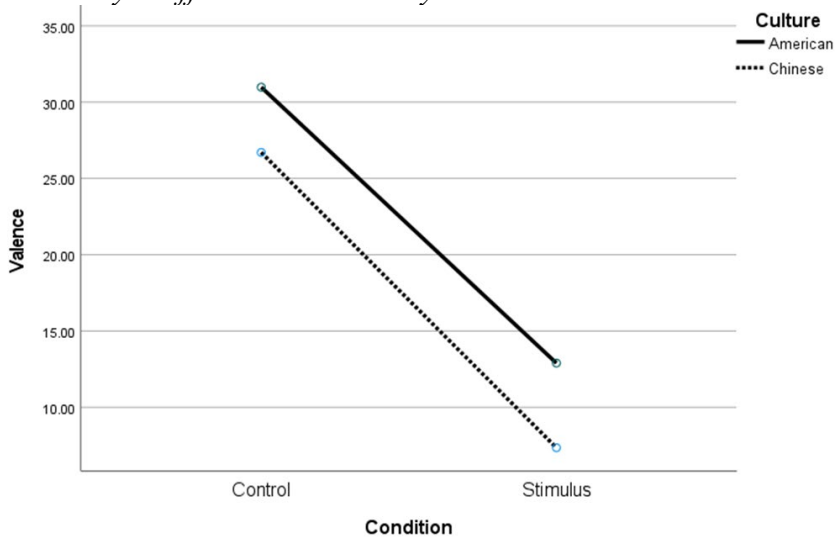
***Takeaways from Pilot Study 2***

For Pilot Study 2 a video depicting distressing scenes of student bullying was created, taking the form of a Public Service Announcement (PSA). The PSA messaging was designed, based on appraisal theory considerations (Lazarus, 1991), to induce negative affect. Pilot Study 2 tested and confirmed the success of the theory-driven message construction of the PSA video that was created.

It is concluded that, as expected, the stimulus video was rated to be significantly more negatively valenced then the control video. The stimulus and neutral video were retained for the main study. The stimulus video will serve as the emotion eliciting stimulus while the neutral video will provide for a baseline assessment of participant's emotions prior to the experiment (see Chapter 6 for main study methods).

**Figure 2**

*Pilot Study 2 Effects on Valence by Condition and Culture*




*Note.* In the figure Control refers to valence experienced by participants during the neutral video and Stimulus refers to the valence elicited from the negatively valenced emotion-eliciting video.

**Pilot Study 3**

Pilot Study 3 addresses if Chinese participants are more mindful than American participants? Pilot Study 3 was conducted using an online survey. The shortened Trait Mindful Attention Awareness Scale (MAAS Trait; Brown & Ryan, 2003; see Chapter 6 *Instruments* section for more information on the MAAS Trait scale) was used to measure participants daily mindfulness. Using the G*Power calculator a sample size of 28 per group was estimated assuming a large effect size of .80, error probability of .05, and a power of .90 (Faul et al., 2007). Effect size was estimated based on previous research comparing an East Asian culture group to Americans (Kahn et al., 2017).

***Factor Structure***

To explore the factor structure of the shortened Mindful Attention Awareness Scale (MAAS Trait) in our Chinese sample, all 6 items of the instrument were subject to exploratory factor analysis (EFA) with oblique rotation (see Footnote 3). An EFA was used to assess the

factor structure of the items (shortened from the original Mindfulness Attention Awareness Scale) in a sample of American and international Chinese students studying in the United States. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .83. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 52) = 190.83, $p$ < .001, indicated that the correlation structure was adequate for factor analyses. A maximum likelihood factor analysis with a cutoff point of .40 and the Kaiser's criterion of eigenvalues greater than 1 yielded a one-factor solution as the best fit for the data, accounting for 59.93% of the variance. The results of this factor analysis are presented in Table 4. The Cronbach's alpha is .89 and omega is .89.

To explore the factor structure of the shortened mindfulness scale (MAAS Trait) in our American sample, all 6 items of the instrument were subject to exploratory factor analysis with oblique rotation (see Footnote 3). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .84. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 162) = 355.93, $p$ < .001, indicated that the correlation structure was adequate for factor analyses. A maximum likelihood factor analysis with a cutoff point of .40 and the Kaiser's criterion of eigenvalues greater than 1 yielded a one-factor solution as the best fit for the data, accounting for 47.15% of the variance. The results of this factor analysis are presented in Table 4. The Cronbach's alpha is .83 and omega is .84.

**Table 4**

*Pilot Study 3: Results from a Factor Analysis for Trait Mindful Attention Awareness Scale*

| America | | China | |
|---|---|---|---|
| All Items | Factor loadings | All Items | Factor loadings |
| 2 | .83 | 3 | .86 |
| 1 | .81 | 6 | .84 |
| 4 | .70 | 4 | .81 |
| 3 | .67 | 1 | .78 |
| 6 | .58 | 3 | .76 |
| 5 | .42 | 5 | .52 |
| % Variance Explained | 47.13% | % Variance Explained | 59.93% |
| Eigenvalue | 3.31 | Eigenvalue | 3.96 |
| alpha | .83 | alpha | .89 |
| omega | .84 | omega | .89 |
| coefficient *H* | .84 | coefficient *H* | .84 |
| AVE | 1.04 | AVE | 3.08 |
| KMO = .84. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 162) = 355.93, $p$ < .001. | | KMO = .83. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 52) = 190.83, $p$ < .001. | |

*Note.* Maximum Likelihood Factor Analysis Extraction method yielded a one-factor solution. Factor analysis is based on a correlation matrix.

***Descriptive Statistics***

MAAS Trait American items were averaged together. The average MAAS Trait American score did not violate the assumption of a relatively normal distribution of the population as determined by the Shapiro-Wilk test ($p$ = .32), and visual inspection of their histograms, normal Q-Q and box plots, and their nonsignificant skew and kurtosis values. MAAS Trait Chinese items were also averaged together. The average MAAS Trait Chinese score did not violate the assumption of a relatively normal distribution of the population as determined by the Shapiro-Wilk test ($p$ = .62), and visual inspection of their histograms, normal Q-Q and box plots, and their nonsignificant skew and kurtosis values. Levene's test for equality of variances is not significant and therefore equal variances between groups can be assumed, $F(1, 212) = 1.03$, $p$ = .31.

***Test Statistics***

To assess if Chinese participants were more mindful then American participants, a one-tailed independent *t* test was conducted testing the difference between the two culture groups on the MAAS Trait. As expected, participants in the Chinese group ($n = 52$, $M = 3.83$, $SD = 1.06$) compared to participants in the American culture group ($n = 162$, $M = 3.49$, $SD = .93$) demonstrated significantly more mindfulness as indicated by scores on the MAAS Trait, $t(212) = 2.37$, $p = .009$. Effect size of the MAAS Trait is $d = .96$, 95% CI [.06, .69]. It is concluded that shortened MAAS Trait will be retained in the main study.

# Chapter 6: Main Study Methods

## Demographics

Participants were students at University of Maryland, College Park; George Washington University; George Mason University; or James Madison University, who self-identified as American or international Chinese students from the People's Republic of China. American and Chinese participants were recruited via flyers handed out on campus, through college organizations, and by word of mouth. At first participants were invited to participate in the study for a $100 raffle gift prize. After 5 months of low recruitment, compensation was increased such that participants who completed the study received a $10 Starbucks gift card. Participants were told that to qualify to participate in the study they either had to (1) be born in the U.S. with parents and both sets of grandparents also born in the U.S. or (2) be born in China with parents and both sets of grandparents also born in China. In addition to the qualifying question, a demographic questionnaire (Appendix B) verified where the participants and their parents and grandparents were born along with general demographic information such as sexual orientation, age, and education.

As a measure of cultural socialization in the main study, items associated with the factor Exposure from the General Ethnicity Questionnaire (GEQ; Tsai et al., 2000) were used. The GEQ included 38 items pertaining to the following factors: Social Affiliation, Activities, Attitudes and Exposure towards their home country, Food, and Language Use and Proficiency (e.g., "When I was growing up, I was exposed to American culture"; see Appendix E). Items 1, 2, 3, 11, and 18 represent the cultural socialization factor Exposure (Tsai et al., 2000). For the Chinese cultural group, there is a translated version in standard Mandarin for the GEQ; the measure was translated by Tsai et al. (2000). The scale has good reliability, $\alpha = .92$, and

construct validity (see Appendix F; Tsai et al., 2000).

## A Priori Sample Size

Based on Gagné and Hancock's (2006) estimations of adequate sample size a confirmatory factor analysis model (CFA) with an indicator: factor ratio of 3:1, an ω coefficient of .71, and reliability coefficient *H* (Hancock & Mueller, 2001) of .79, can achieve satisfactory convergence with a sample size of 200 participants per culture group.

## Instruments

In this section the instruments used in the main study are described.

### *State and Trait Mindfulness*

Two measures of mindfulness are required in the main study, trait mindfulness and state mindfulness. Trait mindfulness in this dissertation refers to the relatively stable characteristic of mindfulness, such that it is the general tendency for someone to be mindful in their daily life. State mindfulness refers to an individual's ability to use mindfulness as an emotion-regulation strategy in a given moment, situation, or condition; the measure assesses an individual's degree of mindfulness at a specific point in time (Hamaker et al., 2007; Medvedev et al., 2017).

To test trait mindfulness, the Mindful Attention Awareness Scale-short scale (MAAS Trait; Black et al., 2012; Brown & Ryan, 2003) was used. The scale was developed specifically to focus on the presence or absence of attention to and awareness of what is occurring in the present; it differs from psychological measures of acceptance, trust, empathy, and gratitude (see Shapiro & Schwartz, 2000). The short scale consists of 6-items (items 7, 8, 9, 10, 13, and 14, each on a 7-point scale from 1 (*Almost Always*) to 7 (*Almost Never*), where high scores reflect more mindfulness (see Appendix G). The scale has good reliability, α = .82, and validity as determined by a confirmatory factor model yielding a CFI of .91 and RMSEA of .06 (see

Appendix H; Brown & Ryan, 2003).

In addition to measuring trait, long-term stable mindfulness orientation (i.e., MAAS Trait), a state mindfulness measure (MAAS State) that was tested in Pilot Study 1 to determine the degree to which participants use mindfulness tactics when instructed to do so during the experiment was also used. This momentary measure of mindfulness (MAAS State) was adopted and refined from the MAAS Trait (see Appendix G). As indicated in the Pilot Study 1, the English MAAS Trait and MAAS State were translated into Mandarin by a research team comprising 8 international Chinese students whose first language was Mandarin and who were undergraduate and graduate students at the University of Maryland, College Park. Brislin's (1970) procedures for translation and back-translation was used.

***State and Trait Reappraisal***

Like mindfulness, two measures of reappraisal are also required in the main study, trait reappraisal and state reappraisal. Trait reappraisal in this dissertation refers to the relatively stable characteristic of reappraising that a person perceives to display. In other words, trait reappraisal is the general tendency for someone to be able to reappraise their emotions in efforts to regulate their emotions. State reappraisal refers to an individual's reappraisal experience in a given moment, situation, or condition; the measure assesses an individual's degree to which someone uses reappraisal emotion-regulation tactics at a specific point in time (Hamaker et al., 2007).

Trait emotion-regulation reappraisal strategy was assessed by the Emotion Regulation Questionnaire (ERQ Trait; Gross & John, 2003). The ERQ Trait measure includes six reappraisal statements that participants rate on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*; see Appendix I). The measure has good reliability, $\alpha = .75$, and construct validity (see Appendix J;

Gross & John, 2003).

The state reappraisal measure (ERQ State), tested in Pilot Study 1, assesses the degree to which participants use reappraisal tactics when instructed to do so during the main study. This momentary state measure of reappraisal, which will measure the utilization of reappraisal tactics during the study (ERQ State), was adopted and refined from the ERQ Trait (see Appendix I).

As indicated in the Pilot Study 1, the state ERQ was translated into Mandarin by a research team comprised of 8 International Chinese students whose first language was Mandarin and were undergraduate students at the University of Maryland, College Park. Brislin's (1970) procedures for translation and back-translation was used. Additionally, the original ERQ measure was translated into Mandarin by Qing Zhao (Stanford Psychophysiology Laboratory) used by Gross and John (2003) in their research of reappraisal.

***Ideal Affect: Preference for High Arousal Positive States and Preference for Low Arousal Positive States***

To test ideal affect, the Affect Valuation Index (AVI) was used (Tsai et al., 2006). For ideal affect, the index asks participants on average how "you would IDEALLY like to feel" on a scale from 1 (*very slightly or not at all*) to 5 (*extremely or all of the time*). The items are in relation to high arousal positive (HAP) states (i.e., excited, enthusiastic, elated) and low arousal positive states (LAP) states (i.e., calm, peaceful, relaxed; see Appendix K). The index was constructed for cross-cultural research and thus has been translated and tested for validity and reliability in Mandarin for Chinese participants (Tsai et al., 2006). The Mandarin translation was created by the Tsai et al. (2006) research team. Scale has good reliability, $\alpha = .71$, and validity (see Appendix L; Tsai, Miao, et al., 2007).

### *Control: Preference to Influence and Preference to Adjustment*

To measure preference to influence and preference to adjustment, items from the Circumplex Scale of Interpersonal Values (CSIV; Locke, 2000; Morling et al., 2002; Tsai, Miao, et al., 2007; Weisz et al., 1984) were used. Four items measured the construct of influence, and five items measured the construct of adjustment. The items are rated on a 5-point scale (see Appendix M). Scale has good reliability, $\alpha = .63$, and validity (see Appendix N; Tsai, Miao, et al., 2007).

The English CSIV measure was translated into Mandarin by a research team comprising of eight international Chinese students whose first language was Mandarin and were undergraduate students at the University of Maryland, College Park. Brislin's (1970) procedures for translation and back-translation was used.

### *Measure of Subjective Emotional Experience*

During the main study, participants are asked to rate their subjective emotional experience. An altered version of the Positive and Negative Affect Schedule (PANAS; Watson et al., 1999) is used to assess participants emotions during the stimulus and control videos. The PANAS measures the emotional dimensions, valence, arousal, power, and surprise on a 9-point scale (Appendix O). The scale has good reliability, $\alpha = .89$, and validity (see Appendix P).

## Procedure

The study was conducted online using Qualtrics. All participants completed an IRB-approved consent form before beginning. The study had three parts; parts one and two were randomly presented to participants to prevent order effects. Part 1 was a series of survey questions (i.e., preference to adjust scale, preference to influence scale, preference for high arousal positive states, preference for low arousal positive states, trait Mindful Attention

Awareness Scale [MAAS Trait], and trait Emotion Regulation Questionnaire [ERQ Trait]), presented in random order to prevent order effects. For part 2, all participants watched the same two films, and each film was followed by a self-report measure for participants to record their emotional experience. The first film was a neutral film depicting nature scenes for the duration of one minute and nine seconds. The neutral film was designed to elicit a base level of emotion (the neutral film used was tested in Pilot Study 2). After viewing film one, participants completed their first self-report on their subjective emotional experience using the PANAS emotional dimensions. Next all participants watched film two, a distressing and violent public service announcement on bullying (the emotion-eliciting video stimulus was tested in Pilot Study 2) for the duration of one minute and nine seconds. After watching film two, once again participants completed a self-report on their subjective emotional experience using the PANAS.

Part two of the study included an experimental component to test for effects of emotion-regulation message congruency. Before watching the emotion-eliciting film two, participants were randomly assigned to either regulate their emotions using mindfulness tactics (i.e., mindfulness instruction condition) or regulate their emotion using reappraisal tactics (i.e., reappraisal instruction condition). Instructions used were tested in Pilot Study 1 (instructions can be found in Appendix C). After participants were administered the instructions, participants completed a manipulation check, which was a short three question quiz created to assess participants' understanding of the instructions they were randomly assigned. The quiz was to ensure participants comprehended what was being asked of them in the instructions (see Appendix J). Only after participants completed the "reading comprehension quiz" with correct responses, were they allowed to move on to watch film two where participants were asked to apply the instructions, they received. After participants watched film two, participants again

completed a self-report of their subjective emotional experience using the PANAS. Then in randomized order the state reappraisal (ERQ State) and the state mindfulness (MAAS State) measures were administered to ensure the emotion-regulation strategy instructions were applied while watching film 2.

Part 3 of the study was a demographic questionnaire which included a measure of cultural socialization. After completing Parts 1-3 of the study, participants were presented with a debrief and compensation for their time. See Appendix Q for the IRB consent form and debrief.

# Chapter 7: Results

To test the influence cultural socialization has on emotion-regulation strategies, a structural equation model was used specifying the relationship between cultural socialization (i.e., Chinese and American), cultural values (i.e., preference for high arousal states, preference for low arousal states, preference to influence, and preference to adjust), and the mindfulness and reappraisal emotion-regulation strategies. Additionally, the model tested the effects of message congruency regarding the emotion-regulation strategies on the emotions experienced, measured by the emotional dimensions (valence, arousal, power, surprise). Messages (i.e., instructions) on how to regulate emotions were manipulated and randomly assigned, encouraging participants to either use mindfulness or reappraisal tactics (messages constructed in Pilot Study 1) while watching a negatively valenced emotion-eliciting video (tested in Pilot Study 2).

This chapter begins by presenting demographic statistics followed by a discussion of the sample size. Then a confirmatory factor analysis (CFA) was performed to determine whether the measured variables for the main study reliably reflected their expected latent variables. Each item was specified under the factor that the item was intended to measure. Reliability and validity estimates are presented for each measure. Next, an independent sample *t* test was conducted to see if there was a difference between state mindfulness and state reappraisal scores for the two randomly assigned conditions (instructions for mindfulness tactics and instructions for reappraisal tactics tested in Pilot Study 1). Lastly, SEM analyses were conducted in two steps: (1) The latent variable path model was specified, testing for model fit. Goodness of fit statistics were used to compare nested models. (2) The resulting model from Part 1 was used for hypotheses testing (H1-H11).

**Participants**

458 participants completed the study from which 256 self-identified as American and 192 self-identified as international Chinese students. From the American sample, 8 participant response were incomplete and removed from the study. Additionally, 32 participants were removed for not meeting the qualifications specified in the operational definition for being part of the American culture group (e.g., participants indicated that parents were born outside the U.S.). The final American sample consisted of 216 participants. From the 192 self-identifying Chinese participants, 19 participants data was removed from the study due to incomplete responses. All the remaining 173 met the operational definition for being part of the international Chinese cultural group.

The average age for the Chinese participants is 22.70 (*SD* = 3.68), with a median age of 22; 43% of the sample self-identified as male and 49% identified as female with 8% choosing to not answer the question. The average age of the American participants is 20.45 (*SD* = 2.43), with a median age of 20; 25% of the sample self-identified as male and 74% identified as female with 1% of the participants choosing to not answer the question.

The measure of cultural socialization assessed socialization into Chinese and American culture with higher scores indicating Chinese socialization and lower scores indicating American socialization.

**Sample Size**

To determine if the sample size collected was sufficient for a structural equation model analysis (SEM), I compared my confirmatory factor analysis results to a Monte Carlo simulation that tested the relationship between structural model parameters and sample size (Wolf et al., 2013). Models with more indicators and stronger factor loadings required a smaller sample

relative to models with fewer indicators and weaker factor loadings (Wolf et al., 2013). For example, a one factor, 3-4 indicator model with loadings of .50 requires a sample size of 190, and the same model with loadings of .65 requires a sample size of 90 (Wolf et al., 2013). A one factor, 6 indicator model with loadings of .50 requires a sample size of 90, and the same model with loadings of .65 requires a sample size of 55 (Wolf et al., 2013). Accordingly, a confirmatory factor analysis was conducted in AMOS (26.0.0); American and Chinese data were evaluated separately. Each scale was evaluated individually, modeling a one factor solution. The number of indicators per factor and their loadings were used to determine the recommended minimum sample size according to the Monte Carlo simulation by Wolf et al. (2013; see Table 5). All the latent factors required a minimum sample size of 95 or less (the only exception was an item that assesses preference to adjust with a factor loading of .64 instead of the .65; factor loadings equal to or greater than .65 require a sample size of 90). Overall, since American and Chinese data were evaluated separately, it was concluded that both the American ($n$ = 216) and Chinese ($n$ = 173) participant groups met the minimum sample size requirements as suggested by Wolf et al. (2013).

**Table 5**

*Results Comparing Minimum Sample Size Suggested by Wolf et al. (2013) to Main Study Data Based on Number of Indicators and Factor Loadings*

| Scale | Participant Culture Group | Number of Indicators | Factor Loadings | Min. Sample Size Suggested by Wolf et al. (2013) | Sample Size in the Main Study |
|---|---|---|---|---|---|
| Preference for High Arousal Positive Affect | American | 3 | ≥ .80 | 55 | 216 |
| | Chinese | 3 | ≥ .80 | 55 | 173 |
| Preference for Low Arousal Positive Affect | American | 3 | ≥ .80 | 55 | 216 |
| | Chinese | 3 | ≥ .65 | 95 | 173 |
| Trait Reappraisal Scale | American | 5 | ≥ .65 | 95-55* | 216 |
| | Chinese | 5 | ≥ .65 | 95-55* | 173 |
| State Reappraisal Scale | American | 5 | ≥ .65 | 95-55* | 216 |
| | Chinese | 5 | ≥ .65 | 95-55* | 173 |
| Trait Mindfulness Scale | American | 5 | ≥ .65 | 95-55* | 216 |
| | Chinese | 5 | ≥ .65 | 95-55* | 173 |
| State Mindfulness Scale | American | 4 | ≥ .65 | 95 | 216 |
| | Chinese | 4 | ≥ .65 | 95 | 173 |
| Preference to Adjust Scale | American | 3 | ≥ .65 | 95 | 216 |
| | Chinese | 3 | ≥ .64 | 95** | 173 |
| Preference to Influence Scale | American | 3 | ≥ .65 | 95 | 216 |
| | Chinese | 3 | ≥ .65 | 95 | 173 |

*Note.* $N = 389$. A factor analysis, Promax rotation conducted was used to obtain factor loadings. Factor analysis is based on a correlation matrix.

*Wolf et al. (2013) did not conduct a simulation for a one factor-five indicator model and thus the range for suggested sample size is presented for 4 indicators to 6 indicators given factor loadings of ≥ .65.

**One of the items has a factor loading of .64, and therefore the minimum sample size suggested by Wolf et al. (2013) is an approximate estimate of 95 based on factor loadings of ≥ .65.

**Data Preparation**

Skewness and kurtosis values were evaluated to determine the relative normality of data (the absolute value of the skewness coefficient to be less than 3 and kurtosis coefficient to be less than 10; Kline, 2011). Many variables had a skewness or kurtosis coefficient out of the acceptable range. In line with a single-bend family of transformations, the formula $Y^* = (Y + k)^{\lambda}$ was used in a trial-and-error analysis, where I systematically varied the λ and k to find an optimal transformation (Fink, 2009). In the transformation equations, Y* is the transformed value of Y. To determine an optimal transformation the skew of the original data was evaluated for whether it was positive or negative. For a positive skew, a $\lambda < 1$, and negative skew, a $\lambda > 1$, would result in a more symmetric distribution. Accordingly, the following transformation were applied: The state reappraisal scale was transformed, such that $k = 2$ and $\lambda = 2$; $Y^* = (Y + 2)^2$. The preference for high arousal positive affect, the preference for low arousal positive affect, and the state mindfulness scale were transformed such that $k = 1$ and $\lambda = 2$; $Y^* = (Y + 1)^2$. Trait mindfulness scale was transformed such that $k = 1$ and $\lambda = 0$; $Y^* = \ln(Y + 1)$. The preference to adjust, preference to influence, and trait reappraisal scale were transformed such that $k = 1$ and $\lambda = .5$; $Y^* = (Y + 1)^{.5}$. Lastly, the General Ethnicity Questionnaire and the measured emotional dimensions (PANAS for valence, power, surprise, and arousal) were transformed such that $k = .5$ and $\lambda = .5$; $Y^* = (Y + .5)^{.5}$. After the transformations, the skewness and kurtosis of all the variables were within an acceptable range such that the absolute value of the skewness coefficient was less than 3 and the absolute value of the kurtosis coefficient was less than 10 (Table 6). The manipulated experimental variable, the instructions administered, were dummy coded (reappraisal = .5, mindfulness = -.5).

**Table 6**

*Demographic Table for Composite Scores of Measures in the Main Study*

| | Original Data | | | | Transformation Equations | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | Skewness | Kurtosis | | *M* | *SD* | Skewness | Kurtosis |
| State Mindfulness Scale | 5.33 | 1.20 | -0.64 | -0.69 | $Y^* = (Y + 1)^2$ | 43.45 | 14.82 | -0.38 | 0.14 |
| State Reappraisal Scale | 3.72 | 1.52 | 0.56 | 0.05 | $Y^* = (Y + 2)^2$ | 25.02 | 15.04 | -0.10 | -0.58 |
| Preference to Influence Scale | 3.20 | 0.68 | -0.54 | 0.28 | $Y^* = (Y + 1)^{.5}$ | 1.99 | 0.20 | -0.21 | 0.13 |
| Preference to Adjust Scale | 2.56 | 0.75 | -0.17 | -0.52 | $Y^* = (Y + 1)^{.5}$ | 1.89 | 0.23 | -0.02 | -0.53 |
| High Arousal Positive Affect | 3.79 | 0.77 | -0.62 | 0.94 | $Y^* = (Y + 1)^2$ | 23.78 | 7.01 | -0.07 | -0.19 |
| Low Arousal Positive Affect | 4.27 | 0.73 | -0.91 | 0.37 | $Y^* = (Y + 1)^2$ | 28.53 | 7.10 | -0.62 | -0.53 |
| Trait Mindfulness Scale | 3.92 | 1.18 | 0.15 | -0.34 | $Y^* = \ln(Y + 1)$ | 1.57 | 0.27 | -0.60 | 0.21 |
| Trait Reappraisal Scale | 4.88 | 1.08 | -0.86 | 0.73 | $Y^* = (Y + 1)^{.5}$ | 2.41 | 0.25 | -0.42 | 1.70 |
| Cultural Socialization | 4.22 | 0.63 | -1.20 | 2.77 | $Y^* = (Y + .5)^{.5}$ | 4.33 | 0.61 | -1.00 | 1.81 |
| Valence | 2.49 | 1.43 | 1.27 | 2.88 | $Y^* = (Y + .5)^{.5}$ | 1.69 | 0.39 | 0.58 | 0.19 |
| Arousal | 4.21 | 2.71 | -0.15 | -1.54 | $Y^* = (Y + .5)^{.5}$ | 2.07 | 0.67 | 0.08 | -1.41 |
| Power | 4.99 | 2.45 | -0.39 | -0.87 | $Y^* = (Y + .5)^{.5}$ | 2.28 | 0.56 | -0.02 | -1.09 |
| Surprise | 5.75 | 2.43 | -0.93 | -0.70 | $Y^* = (Y + .5)^{.5}$ | 2.44 | 0.55 | -0.55 | -0.14 |

*Note*. $N = 389$. Standard error for the skewness statistic is 0.12 and for kurtosis is 0.25. In the transformation equations, $Y^*$ is the transformed value of $Y$.

**Measurement Model**

A confirmatory factor analysis (CFA) was conducted in AMOS 26.0.0. Hu and Bentler (1999) suggest fit indices criteria of RMSEA ≤ .06 and CFI ≥ .95. Alternatively, the cutoff for a CFI value > .90 has also been reported as acceptable (Bentler & Bonett, 1980) if the evaluation of multiple fit indices suggests a good model fit. Additionally, Kline (2011) suggested that an upper confidence interval of root-mean-square error of approximation (RMSEA) below 0.10 indicates a "good fit" of a model.

The measurement model included the latent factor cultural socialization, with data from both culture groups, American and international Chinese students. The measure of cultural socialization assessed socialization into Chinese and American culture with higher scores indicating Chinese socialization and lower scores indicating American socialization.

The fit indices of the measurement model were acceptable. Items with factor loadings below .40 (Collier, 2020) were removed. Items were removed one at a time, with the weakest loading removed first. This process was repeated until the final model included only factor loadings that were above .40. The fit indices of the model after eliminating the weak items can be found in Table 7. Evaluating multiple fit indices, the final model achieved a relatively better fit then the original measurement model, $\chi^2(278, N = 389) = 648.39$, $p < .001$; RMSEA = .06, 90% CI [.05, .06], CFI = .93.

Reliability and validity were assessed separately for the American and Chinese data. Overall, each measure in the CFA measurement model demonstrated reliability and validity for both culture groups. Reliability was assessed using alpha coefficients (Cronbach, 1951), omegas (Dunn et al., 2014), and coefficient *H*s (Hancock & Mueller, 2001; see Table 8); all measures were reliable with coefficients greater than .55 (Kline, 2011). Convergent validity was evaluated

by examining the standardized factor loadings within the constructs. All latent construct loadings were between .64 and .90, showing satisfactory item convergence on their respective constructs (Collier, 2020). Average variance extracted (AVE) was also calculated to check for convergent validity. The AVE of all latent constructs was higher than the suggested value of 0.50 (Fornell & Larcker, 1981). Discriminant validity is the degree to which the measures of different concepts are distinct. Between factor correlations for the factors in the measurement model are in Table 9. All factor correlations were below .80, indicating that discriminant validity was upheld.

**Table 7**

*Goodness of Fit Statistics for the Measurement Model in the Main Study*

| Model | $\chi^2$ | *df* | *p* | $\chi^2/df$ | CFI | RMSEA [90% CI] | GFI | AIC | BIC |
|---|---|---|---|---|---|---|---|---|---|
| Model-MM1 | 1,025.25 | 443 | < .001 | 2.31 | .90 | .06 [.05; .06] | .86 | 1195.25 | 1532.15 |
| Model-MM2[a] | 973.08 | 413 | < .001 | 2.36 | .90 | .06 [.05; .06] | .86 | 1139.07 | 1468.05 |
| Model-MM3[b] | 890.69 | 384 | < .001 | 2.32 | .91 | .06 [.05; .06] | .87 | 1052.69 | 1373.74 |
| Model-MM4[c] | 826.75 | 356 | < .001 | 2.32 | .91 | .06 [.05; .06] | .88 | 984.75 | 1297.87 |
| Model-MM5[d] | 750.10 | 329 | < .001 | 2.28 | .92 | .06 [.05; .06] | .88 | 904.10 | 1209.30 |
| Model-MM6[e] | 682.52 | 351 | < .001 | 2.25 | .93 | .06 [.05; .06] | .89 | 832.52 | 1129.79 |
| Model-MM7[f] | 648.39 | 278 | < .001 | 2.33 | .93 | .06 [.05; .06] | .89 | 794.39 | 1083.73 |

*Note. N* = 389. In Model-MM1, the high arousal positive affect scale and the low arousal positive affect scale were each represented by three indicators, preference to influence was represented by four indicators, preference to adjust was represented by five indicators, trait mindfulness was represented by six indicators, trait reappraisal was represented by six indicators, and cultural socialization was represented by five indicators.

[a] Item 4 from the preference to Influence scale was removed.

[b] Item 6 from the preference to Adjust scale was removed.

[c] Item 5 from the preference to Adjust scale was removed.

[d] Item 6 from the Emotion Regulation Questionnaire was removed.

[e] Item 13 from the trait Mindful Attention Awareness Scale was removed.

[f] Item 1 from the General Ethnicity Questionnaire used to measure cultural socialization was removed.

**Table 8**

*Evidence of Reliability and Validity for the Factors in the Main Study*

| Scale | Culture Group | α | ω | coefficient *H* | AVE |
|---|---|---|---|---|---|
| HAP | American | .79 | .79 | .88 | 0.71 |
| | Chinese | .82 | .82 | .89 | 0.72 |
| LAP | American | .84 | .85 | .91 | 0.76 |
| | Chinese | .78 | .80 | .88 | 0.68 |
| LOCa | American | .73 | .75 | .87 | 0.66 |
| | Chinese | .59 | .61 | .81 | 0.56 |
| LOCi | American | .59 | .60 | .79 | 0.55 |
| | Chinese | .63 | .69 | .82 | 0.58 |
| ERQ Trait | American | .81 | .80 | .86 | 1.03 |
| | Chinese | .86 | .86 | .90 | 1.22 |
| MAAS Trait | American | .84 | .85 | .86 | 0.53 |
| | Chinese | .82 | .82 | .84 | 0.50 |
| Cultural Socialization | American | .81 | .81 | .89 | 0.64 |
| | Chinese | .72 | .73 | .84 | 0.57 |

*Note. N* = 389. MAAS Trait, Trait Measure for Mindful Attention Awareness Scale; ERQ Trait, Trait Emotion Regulation Questionnaire; HAP, High Arousal Positive Affect Scale; LAP, Low Arousal Positive Affect Scale; LOCi, Preference to Influence Scale; LOCa, Preference to Adjust Scale. See Hancock and Mueller (2001) for how the coefficient *H* was estimated.

**Table 9**

*Correlation Matrix as Evidence for Discriminant Validity of Cultural Values*

| | HAP | LAP | LOCa | LOCi | Cultural Socialization | MAAST | ERQT |
|---|---|---|---|---|---|---|---|
| HAP | -- | | | | | | |
| LAP | .28** | -- | | | | | |
| LOCa | .01 | .03 | -- | | | | |
| LOCi | .19** | .10 | .20** | -- | | | |
| Cultural Socialization | -.20** | -.18** | .09 | .07 | -- | | |
| MAAS Trait | -.08 | -.12* | -.15** | -.02 | .26** | -- | |
| ERQ Trait | .09 | .11* | .07 | .04 | .11* | .10 | -- |

*Note. N* = 389. MAAST, Trait Measure for Mindful Attention Awareness Scale; ERQT, Trait Emotion Regulation Questionnaire; HAP, High Arousal Positive Affect Scale; LAP, Low Arousal Positive Affect Scale; LOCi, Preference to Influence Scale; LOCa, Preference to Adjust Scale.

**Correlation is significant at the 0.01 (2-tailed).

*Correlation is significant at the 0.05 (2-tailed).

## Results from the Manipulation Check

All participants were randomly assigned to either follow mindfulness instructions or reappraisal instructions (Appendix C) while watching the stimulus video. A manipulation check was conducted to ensure that reappraisal instructions resulted in greater use of reappraisal tactics as measured by the state Emotion Regulation Questionnaire (ERQ State). The mindfulness instructions were expected to result in greater mindfulness tactics as measured by the state Mindful Attention Awareness Scale (MAAS State). In this section, before presenting results from the independent sample *t* test, both ERQ State and MAAS State's factor structure along with validity and reliability data are presented.

### *State Emotion Regulation Questionnaire*

Assessing the psychometric properties of the ERQ State scale, the CFA indicated that all items loaded as predicted except for item 6, which had the lowest factor loading. The decision to drop the indicator was based on face validity assessment. Item 6 asked if participants could change their thinking to stay *calm*, while the other items explicitly mention positive and negative emotions. Therefore, item number 6 regarding calmness was removed from the scale. For the final scale, with a Kaiser's criterion of eigenvalues greater than 1, a one-factor solution with five-items representing participant's ability to use reappraisal during the stimulus video yielded the best fit for both the American and Chinese data sets. Items in the final scale explained 69.41% of the variance in the American group ($\alpha = .89$; $\omega = .90$), and 70.18% of the variance in the Chinese group ($\alpha = .89$; $\omega = .90$). Table 10 contains items, factor loadings, alphas, omegas, and coefficient *H*s (Hancock & Mueller, 2001), the average variance extracted (AVE) estimates (Fornell & Larcker, 1981), and the KMO and Bartlett test of sphericity statistics.

**Table 10**

*Results from the Factor Analysis for the State Emotion Regulation Questionnaire Scale used in the Main Study*

| America | | China | |
|---|---|---|---|
| All Items | Factor loadings | All Items | Factor loadings |
| 5 | **.85** | 3 | **.88** |
| 3 | **.85** | 2 | **.85** |
| 4 | **.84** | 4 | **.85** |
| 2 | **.83** | 5 | **.82** |
| 6 | **.79** | 1 | **.76** |
| 1 | **.76** | 6 | .53 |
| % Variance Explained | 66.93 | | 62.31 |
| Eigenvalue | 4.02 | | 3.74 |
| alpha | .90 | | .87 |
| omega | .90 | | .88 |
| Coefficient *H* | .93 | | .93 |
| AVE | 1.88 | | 1.87 |
| KMO = .85. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 216) = 789.51, $p$ < .001. | | KMO = .84. Bartlett's test of sphericity $\chi^2$ (15, $N$ = 173) = 560.39, $p$ < .001. | |
| Removing Item 6 | | Removing Item 6 | |
| 3 | **.87** | 3 | **.88** |
| 4 | **.86** | 4 | **.87** |
| 2 | **.85** | 2 | **.84** |
| 5 | **.84** | 5 | **.83** |
| 1 | **.75** | 1 | **.76** |
| % Variance Explained | 69.41 | | 70.18 |
| Eigenvalue | 3.47 | | 3.51 |
| alpha | .89 | | .89 |
| omega | .90 | | .90 |
| Coefficient *H* | .92 | | .93 |
| AVE | 1.30 | | 1.32 |
| KMO = .83. Bartlett's test of sphericity $\chi^2$ (10, $N$ = 216) = 518.44, $p$ < .001. | | KMO = .83. Bartlett's test of sphericity $\chi^2$ (10, $N$ = 173) = 518.44, $p$ < .001. | |

*Note.* A confirmatory factor analysis, Promax rotation conducted. Factor loadings above .70 are in bold. AVE, Average variance extracted = (Σ squared standardized loadings) / [(Σ squared standardized loadings) + (Σ indicator measurement error)].

### *State Mindfulness Attention Awareness Scale*

Assessing the psychometric properties of the state Mindful Attention Awareness Scale, a CFA indicated that all items loaded as predicted except for item 1, which was dropped because of a weak factor loading below .40 (Collier, 2020). For the final scale, with a Kaiser's criterion

of eigenvalues greater than 1, a one-factor solution with five-items representing how mindful the participant was during the stimulus video yielded the best fit for both the American and Chinese data sets. Items in the final scale explained 63.94% of the variance in the American group (α = .81; ω = .81), and 55.22% of the variance in the Chinese group (α = .72; ω = .74). Table 11 contains items, factor loadings, alphas, omegas, and coefficient *H*s (Hancock & Mueller, 2001), the average variance extracted (AVE) estimates (Fornell & Larcker, 1981), and the KMO and Bartlett test of sphericity statistics.

**Table 11**

*Results from the Factor Analysis for the State Mindful Attention Awareness Scale used in the Main Study*

| America | | China | |
|---|---|---|---|
| All Items | Factor loadings | All Items | Factor loadings |
| 2 | **.81** | 5 | **.89** |
| 5 | **.78** | 2 | **.62** |
| 3 | **.67** | 4 | **.57** |
| 4 | **.61** | 3 | **.49** |
| 1 | **.59** | 1 | .39 |
| % Variance Explained | 48.77 | | 37.95 |
| Eigenvalue | 2.92 | | 2.45 |
| alpha | .82 | | .73 |
| omega | .82 | | .74 |
| coefficient *H* | .84 | | .84 |
| AVE | 1.01 | | 1.01 |
| KMO = .83. Bartlett's test of sphericity $\chi^2$ (10, $N$ = 216) = 354.67, $p$ < .001. | | KMO = .71. Bartlett's test of sphericity $\chi^2$ (10, $N$ = 173) = 195.19, $p$ < .001. | |
| Removing Item 1 | | Removing Item 1 | |
| 5 | **.81** | 5 | **.96** |
| 2 | **.78** | 2 | **.60** |
| 3 | **.68** | 4 | **.52** |
| 4 | **.62** | 3 | **.45** |
| % Variance Explained | 52.52 | | 44.03 |
| Eigenvalue | 2.56 | | 2.21 |
| alpha | .81 | | .72 |
| omega | .81 | | .74 |
| coefficient *H* | .83 | | .74 |
| AVE | .53 | | .93 |
| KMO = .79. Bartlett's test of sphericity $\chi^2$ (6, $N$ = 216) = 277.29, $p$ < .001. | | KMO = .66. Bartlett's test of sphericity $\chi^2$ (6, $N$ = 173) = 161.82, $p$ < .001. | |

*Note.* A confirmatory factor analysis, Promax rotation conducted. Factor loadings above .40 are in bold. AVE, Average variance extracted = (Σ squared standardized loadings) / [(Σ squared standardized loadings) + (Σ indicator measurement error)].

### *Independent Sample* t *test*

All participants were randomly assigned to either follow mindfulness instructions or reappraisal instructions while watching the stimulus video. To assess how well participants were able to follow instructions, a one-tailed independent sample *t* test was conducted testing the difference between the two conditions on the state Mindful Attention Awareness Scale and the

ERQ State. As expected, participants who were in the reappraisal instruction condition ($n$ = 183, $M$ = 29,83, $SD$ = 13.60) compared to participants in the mindfulness instruction condition ($n$ = 202, $M$ = 20.66, $SD$ = 15.22) demonstrated significantly better scores on the state reappraisal scale, $t(383) = 6.27$, $p < .001$. Levene's statistic assumes equal variance between groups, $F(383) = 2.74$, $p = .10$. Effect size of the state reappraisal scale is $d$ = -.64, 95% CI [.43, .84]. See Appendix R for figures depicting differences on the state reappraisal scale by condition for the two culture groups, American and Chinese.

On the state Mindful Attention Awareness Scale, unexpectedly, despite participants in the reappraisal instruction condition ($n$ = 184, $M$ = 42.31, $SD$ = 15.02) scoring lower than participants in the mindfulness instruction condition ($n$ = 201, $M$ = 44.50, $SD$ = 14.59), there was no significant difference between the conditions, $t(383) = -1.45$, $p = .07$. Levene's statistic assumes equal variance between groups, $F(383) = .08$, $p = .78$. The effect size of the MAAS State is Cohen's $d$ = -.15, 95% CI [-.35, .05].

To understand the relationship between the state Mindful Attention Awareness Scale items and the instructions presented as part of the mindfulness condition, face validity of all the items was assessed. From face validity analysis, item number two, "I was watching the video without paying attention" (reverse coded), was identified as being the most like the mindfulness instructions administered to participants in the study. Item number 2, which will be referred to as the s*tate attention* item, also had high factor loadings for both the Chinese (factor loading of .74) and American (factor loading of .85) culture groups. Therefore, rather than using all the items in the state Mindful Attention Awareness Scale, only the state attention item was selected (as it represented the instructions provided to participants and high factor loadings in both culture

groups) to determine if participants in the mindfulness condition were in fact more mindful during the stimulus video.

In the one-tailed independent sample *t* test for the attention item of the state mindfulness scale by condition, participants in the reappraisal instruction condition ($n$ = 185, $M$ = 42.35, $SD$ = 18.59) scored lower than participants in the mindfulness instruction condition ($n$ = 203, $M$ = 46.19, $SD$ = 18.49). As expected, a significant difference was found between the conditions, $t(386) = -2.04$, $p = .02$. Levene's statistic assumes equal variance between groups, $F(386) = .22$, $p = .64$. The effect size of the attention item is Cohen's $d = -.21$, 95% CI [-.41, -.01]. It is concluded that participants in the mindfulness condition scored significantly higher than participants in the reappraisal condition on the attention item such that participants in the mindfulness condition were watching the video more attentively (see Appendix R for figures depicting differences on the state mindfulness scale and the attention item from the state mindfulness scale by condition for the two culture groups, American and Chinese).

The state attention item does not represent how mindful participants were during the stimulus video; however, it does reflect the difference between the reappraisal and mindfulness conditions that were imposed on the participants in the study. Therefore, in the final model, the single item, termed state attention, will be retained for further analysis.

**Model Testing**

AMOS 26.0.0 was used for SEM analyses. Model testing was split into two parts. First, goodness of fit statistics were used to assess model fit. Second, the final model specified from Part 1 was used for hypothesis testing.

Due to the sample size limitations in this study, the final model was a hybrid that included both multiple-indicator measurements (with latent constructs, indicators, and their

measurement errors) and single-indicator measurements (with composite scores used as a single indicator on a latent factor). A hybrid approach (see Figure 3) was adopted because a full structural analysis could not be estimated given the dissertation's sample size. A single-indicator latent path model was also estimated by fixing path from the factor to the item to 1 and fixing the error variances to a "non-zero value, calculated on the basis of the measure's sample variance estimate and [the] . . . internal consistency estimate: $\delta_x = VAR(X)(1-\rho)$, where $\delta_x$ is the fixed error variance term, the sample variance of the single indicator is VAR(X), and the reliability estimate of the indicator is ρ" (Brown, 2015, p. 123). When applying a single-indicator approach to the model, the model results in poor fit, as indicated by the goodness of fit statistics $\chi^2(13, N = 389) = 102.47$, $p < .001$; normed $\chi^2 = 7.88$; CFI = .33; GFI = 0.93; RMSEA = 0.13 90% CI [.11, .16]. In contrast the hybrid model has improved fit, $\chi^2(146, N = 389) = 337.80$, $p < .001$; normed $\chi^2 = 2.31$; CFI = .94; GFI = 0.92; RMSEA = 0.06 90% CI [.05, .07]. When comparing the two models, the hybrid model has better fit with a lower normed chi-square value, lower RMSEA, and a higher CFI compared to the single-indicator model. Table 12 shows goodness of fit statistics for the hybrid model retained for this dissertation as well as for the single indicator model. Therefore, the hybrid model was retained for further analysis as it has improved fit compared to the single-indicator model but without the restrictions requiring a larger sample size.

Specific criteria were used to assess model fit. According to Kline (2011), a comparative fit index (CFI) above .95 suggests acceptable model fit. Alternatively, the cutoff for a CFI value > .90 has also been reported as acceptable (Bentler & Bonett, 1980) if the evaluation of multiple fit indices suggests a good model fit. Kline (2011) suggested that a root-mean-square error of approximation (RMSEA) below 0.05 or upper confidence interval of RMSEA below 0.10

suggests a “good fit” of a model. The RMSEA can be used to evaluate competing models (Hair et al., 2009), such that the lower the RMSEA value, the better the model fits the data.

**Table 12**

*Goodness of Fit Statistics Comparing the Single Indicator Model to the Hybrid Model*

| Models | $\chi^2$ | *df* | *p* | $\chi^2/df$ | CFI | RMSEA [90% CI] | GFI | AIC | BIC |
|---|---|---|---|---|---|---|---|---|---|
| Single Indicator Model | 102.47 | 13 | < .001 | 7.88 | .33 | 0.13 [.11, .16] | 0.93 | 132.47 | 191.92 |
| Hybrid Model | 337.80 | 146 | < .001 | 2.31 | .94 | 0.06 [.05, .07] | 0.92 | 425.80 | 600.20 |

*Note.* $N = 389$. $\chi^2$ = chi-square value; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; GFI = goodness of fit index; AIC = Akaike information criterion; BIC = Bayesian information criterion.

### *Model Fit*

In part one of the analysis, model fit was assessed using goodness of fit statistics. Results presented in this section are organized into two parts. First the model is described, specifying the relationship between the variables and how the interaction terms in the model were created. Second, goodness of fit statistics and modification indices are assessed.

**Description of the Model for Testing.** Figure 1, specified in Chapter 4, was tested using structural equation modeling. In the model cultural socialization is specified as an exogenous latent factor, represented by five items. Cultural socialization assessed socialization into Chinese and American culture with higher scores indicating Chinese socialization and lower scores indicating American socialization. The exogenous latent factor cultural socialization predicted cultural values. Cultural values were entered into the model as latent endogenous factors, each represented by three items. Next, there is a direct path from the cultural values LAP and preference to adjust to trait mindfulness. Additionally, there is a direct path from HAP and preference for influence to trait reappraisal. Trait mindfulness and trait reappraisal are included as single composite scores entered as endogenous variables in the model. From trait reappraisal there is a direct path to each of the emotional dimensions, valence, arousal, power, and surprise, was specified. Similarly, a path from trait mindfulness to valence, arousal, power, and surprise, was specified. Additionally, two sets of interactions and covariates were included in the model (see Model-1, Figure 3). Below is a description of the interaction terms and the covariates.

***Interaction Terms.*** One of the goals of this study was to assess the effects of message congruency. Testing for message congruency involved testing the congruency (matching) of the priming message (emotion regulation instructional messaging) with participant's pre-existing inclinations to be mindful or use reappraisal tactics. In the study the interaction terms test for the

moderating effect of congruent messages on the relationship between trait mindfulness (or trait reappraisal) and emotions reported during the emotion-eliciting film (H11).

All participants completed trait mindfulness and trait reappraisal measures; scores represented how inclined participants were to use the strategies in their daily lives. Second, participants were randomly assigned to receive instructional messages that either asked participants to use mindfulness or reappraisal tactics while watching the emotion-eliciting film shown in the study. These two conditions were measured using state mindfulness and state reappraisal scales. After watching the film, participants recorded their emotional experiences on four emotional dimensions: valence, power, arousal, and surprise. Congruent messaging occurred when trait preference for the emotion-regulation strategy matched instructions randomly administered. An example of a congruent messaging scenario is if someone rates highly on trait mindfulness and through random assignment also receives a mindfulness instructional message, which is measured by higher scores on the state attention item (retained from *Results from the Manipulation Check* section).

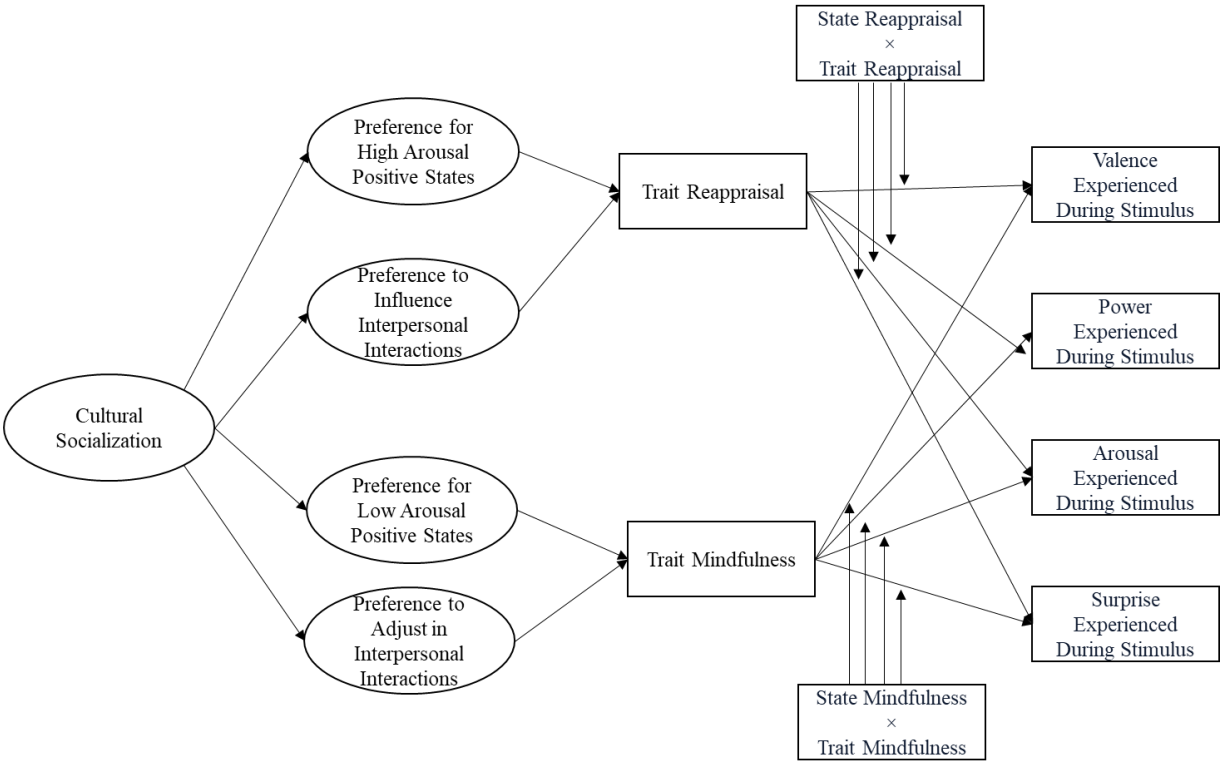
It is hypothesized (H11) that participants who score high on trait mindfulness and who score high on state attention (i.e., indicating that the mindfulness instructional message was assigned to the participant for a congruent message condition) will more effectively regulate their emotions relative to participants who scored lower on the state mindfulness scale (i.e., indicating that the reappraisal instructional message was assigned to the participant for an incongruent messaging condition). Similarly, it is hypothesized that participants who score high on trait reappraisal and who score high on state reappraisal (i.e., indicating that the reappraisal instructional message was assigned to the participant for a congruent message condition) will more effectively regulate their emotions relative to participants who score lower on the state

reappraisal scale (i.e., indicating that the mindfulness instructional message was assigned to the participant for an incongruent message condition).

To test for congruency effects, two interaction terms were created by multiplying the mean corrected values of the variables that were involved in the interaction. For example, the reappraisal interaction term (i.e., Trait Reappraisal × State Reappraisal) was created by multiplying together the mean corrected trait and state reappraisal scores. In the linear-by-linear interaction, the interaction terms were allowed to covary with the variables included in the interaction terms (e.g., Trait Reappraisal × State Reappraisal was allowed to covary with State Reappraisal). Similarly, the mindfulness interaction term (i.e., Trait Mindfulness × State Mindfulness) was created by multiplying together the mean corrected trait and state mindfulness scores.

***Covariates.*** Participants' scores during the neutral film were included as covariates in the model. As discussed in the procedures for the main study, in addition to measuring participants responses during the emotion-eliciting video, participants also rated their emotional responses to the neutral video. Emotions during the neutral video were measured on the four dimensions (i.e., valence, power, arousal, and surprise) using the PANAS. The control measures for emotional dimensions were added as covariates (see Figure 4 as an example of how a covariate was entered into the model).

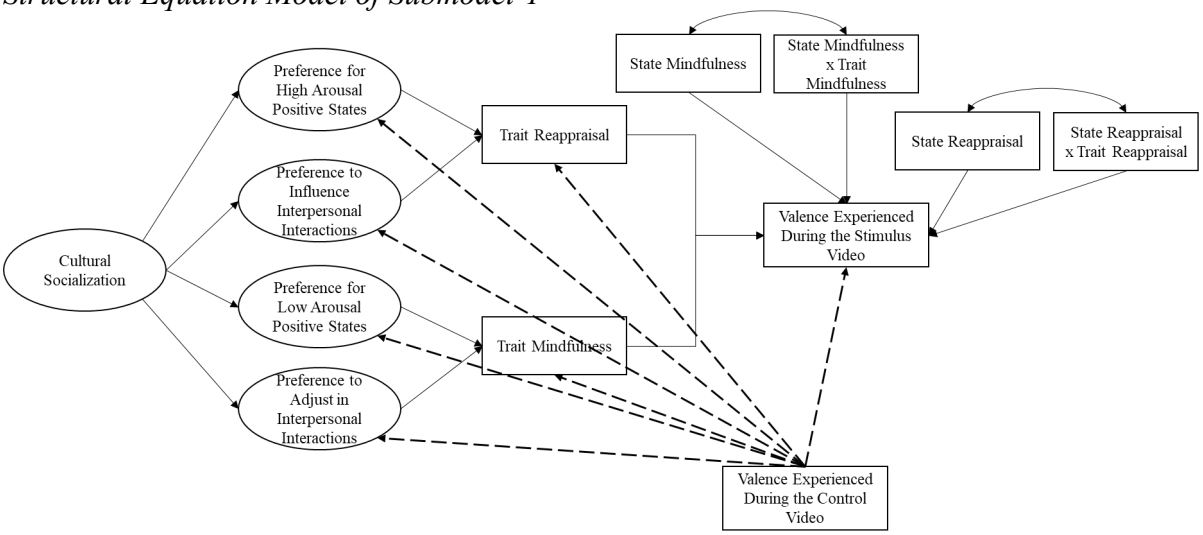
**Figure 3**
*Structural Equation Model of Model-1*




*Note.* This is a model of cultural socialization's influence on emotion-regulation strategies (Model-1). Cultural socialization is an exogenous latent factor. Preference for High Arousal Positive States, preference for Low Arousal Positive states, preference to Influence, and preference to Adjust are endogenous latent factors. Mindfulness, reappraisal, valence experienced, power experienced, arousal experienced, and surprise experienced are endogenous variables. The interaction terms include state mindfulness, State Mindfulness × Trait Mindfulness, state reappraisal, and State Reappraisal × Trait Reappraisal.[2] In the model higher scores for cultural socialization indicate Chinese cultural socialization whereas lower scores indicate American cultural socialization. Not depicted are the emotional dimensions measured during the control video, which were entered as covariates in the model. In AMOS 26.0.0, covariates are included in models by adding paths from the covariate to all the endogenous variables.

**Figure 4**

*Structural Equation Model of Submodel-1*




*Note.* Model depicted is Submodel-1, created to explain how a covariate is added to the model in AMOS. In AMOS covariates are included in models by adding paths from the exogenous covariate to all the endogenous latent variables. For aesthetic and clarity purposes, (1) the paths from the covariate to the endogenous latent variables are indicated with a dashed line in the figure, and (2) only a portion (Submodel-1) of the complete model (see Model-1), is depicted such that there is only one emotional dimension and one covariate.

**Model Fit Statistics.** Model-1 did not achieve good fit based on model fit criteria specified; $\chi^2(340, N = 389) = 785.25$, $p < .001$; normed $\chi^2 = 2.31$; CFI = .89; GFI = 0.88; RMSEA = 0.06 90% CI [.05, .06]; AIC = 1097.25; BIC = 1715.56. Evaluating modification indices, a path was added from cultural socialization to trait mindfulness creating Model 2. As presented in Chapters 2 and 3, emotion-regulation strategies depend on cultural socialization thus adding a direct path from cultural socialization is consistent with the theoretical framework presented in this research. Additionally, the effect of culture on mindfulness was found in pilot study 3, further supporting the addition of a path from cultural socialization to mindfulness. Goodness of fit indices indicate that Model-2 had relatively better fit; the following fit indicators were calculated: $\chi^2(339, N = 389) = 767.05$, $p < .001$; normed $\chi^2 = 2.26$; CFI = .90; GFI = 0.89; RMSEA = 0.06 90% CI [.05, .06]; AIC = 1081.05; BIC = 1703.33. Although for Model 2 the

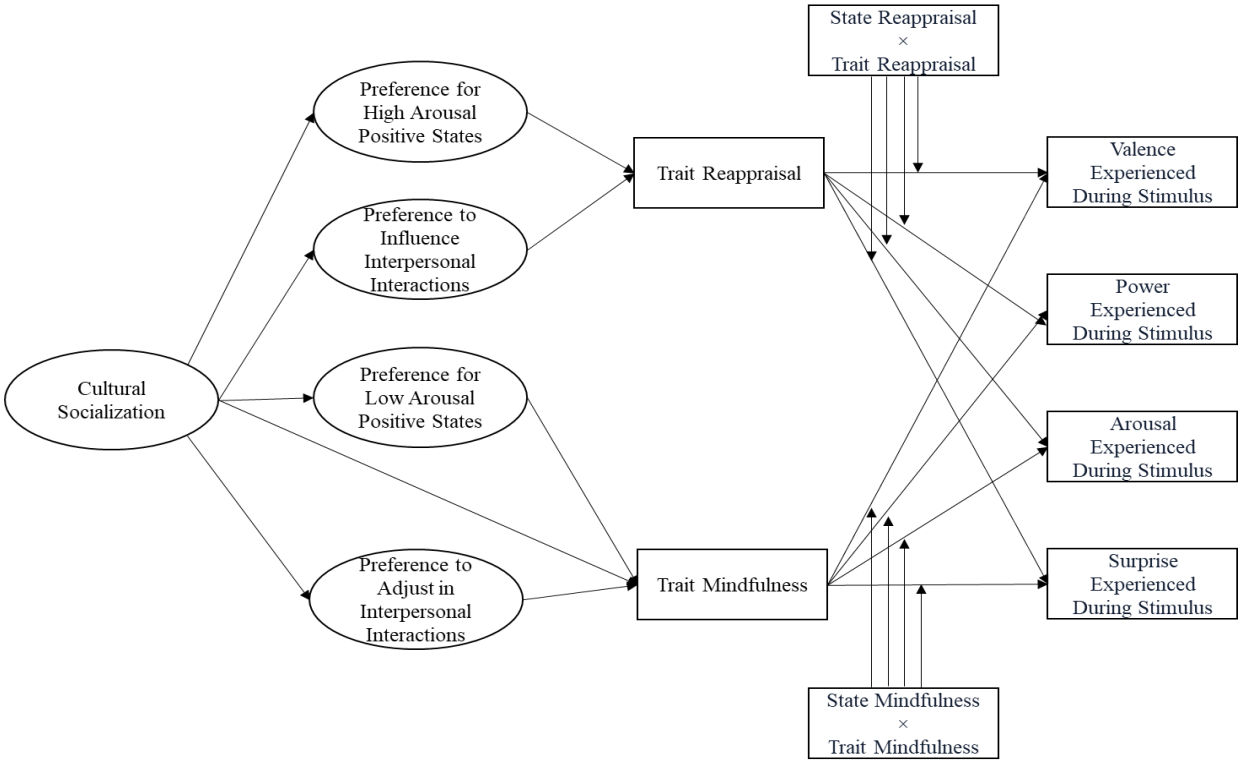
chi-square is significant, the normed chi-square that corrects for sample size is less than 3, indicating a good model fit (Kline, 2011). Additionally, Model 2 was retained for final hypothesis testing as the CFI met the minimum criteria of .90 and an RMSEA of .06 and an upper-level confidence interval below .10 are evidence of sufficient fit (Bentler & Bonett, 1980; Kline, 2011). See Table 13 for goodness of fit statistics comparing Model-1 and Model-2.

***Hypothesis Testing***

Model-2 was the final model retained for hypothesis testing (see Figure 5). Evidence for each hypothesis is presented in this section. A summary of all the standardized path coefficients can be found in Table 14. Table 15 includes the proportion of explained variance ($R^2$) of all the endogenous variable.

**Figure 5**

*Structural Equation Model of Model-2*




*Note.* This is a model of cultural socialization's influence on emotion-regulation strategies (Model-2). Cultural socialization is an exogenous latent factor. Preference for High Arousal Positive states, preference for Low Arousal Positive states, preference to Influence, and preference to Adjust are endogenous latent factors. Trait mindfulness, trait reappraisal, valence experienced during stimulus, power experienced during stimulus, arousal experienced during stimulus, and surprise experienced during stimulus are endogenous variables. The interaction terms include state mindfulness, State Mindfulness × Trait Mindfulness, state reappraisal, and State Reappraisal × Trait Reappraisal.[2] In the model higher scores for cultural socialization indicate Chinese cultural socialization whereas lower scores indicate American cultural socialization. Not depicted are the emotional dimensions measured during the control video, which were entered as covariates in the model. In AMOS 26.0.0, covariates are included in models by adding paths from the covariate to all the endogenous variables.

**Table 13**

*Goodness of Fit Statistics Testing Model-1 and Model-2*

| Models | $\chi^2$ | *df* | *p* | $\chi^2/df$ | CFI | RMSEA [90% CI] | GFI | AIC | BIC |
|---|---|---|---|---|---|---|---|---|---|
| Model-1 | 785.25 | 340 | < .001 | 2.31 | .89 | 0.06 [.05, .06] | .88 | 1097.25 | 1715.56 |
| Model-2[a] | 767.05 | 339 | < .001 | 2.26 | .90 | 0.06 [.05, .06] | .89 | 1081.05 | 1703.33 |
| Model Comparison | $\Delta\chi^2$ | $\Delta$ *df* | *p* | | ΔCFI | ΔRMSEA | | | |
| Model-1 vs. Model-2 | 18.20 | 1 | < .001 | | .10 | 0 | | | |

*Note.* $N = 389$. $\chi^2$ = chi-square value; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; GFI = goodness of fit index; AIC = Akaike information criterion; BIC = Bayesian information criterion; $\Delta\chi^2$ = difference in chi-square value for Model-1 and Model-2; ΔCFI = difference in comparative fit index for Model-1 and Model-2; ΔRMSEA = difference in root-mean-square error of approximation for Model-1 and Model-2.

[a]Modification, direct path added from Cultural Socialization to Trait Mindfulness, was added to Model-1 creating Model-2.

**Table 14**

*Path Coefficients of the Final Latent Model in the Main Study (*N = *389)*

| Paths | Standardized Estimate | Unstandardized Estimate | *SE* based on Unstandardized Estimates | *t* value (two-tailed) | *p* |
|---|---|---|---|---|---|
| **Predicting High Arousal Positive Affect** | | | | | |
| Cultural Socialization → High Arousal Positive Affect | -.12 | -1.75 | 0.85 | -2.07 | .04 |
| **Predicting Low Arousal Positive Affect** | | | | | |
| Cultural Socialization → Low Arousal Positive Affect | -.20 | -2.88 | 0.87 | -3.33 | < .001 |
| **Predicting Preference to Influence** | | | | | |
| Cultural Socialization → Preference to Influence | .09 | 0.02 | 0.02 | 1.33 | .18 |
| **Predicting Preference to Adjust** | | | | | |
| Cultural Socialization → Preference to Adjust | .09 | 0.04 | 0.03 | 1.31 | .19 |
| **Predicting Trait Reappraisal** | | | | | |
| High Arousal Positive Affect → Trait Reappraisal | .12 | 0.01 | 0.002 | 1.98 | .05 |
| Preference to Influence → Trait Reappraisal | .02 | 0.04 | 0.13 | 0.27 | .79 |
| **Predicting Trait Mindfulness** | | | | | |
| Low Arousal Positive Affect → Trait Mindfulness | -.06 | -0.003 | 0.002 | -1.21 | .23 |
| Preference to Adjust → Trait Mindfulness | -.22 | -0.27 | 0.07 | -3.79 | < .001 |
| Cultural Socialization → Trait Mindfulness | .24 | 0.15 | 0.03 | 4.33 | < .001 |
| **Predicting Valence** | | | | | |
| Trait Reappraisal → Valence | -.15 | -0.25 | 0.08 | -3.24 | < .01 |
| Trait Mindfulness → Valence | .07 | 0.10 | 0.07 | 1.45 | .15 |
| State Reappraisal → Valence | .20 | 0.01 | 0.001 | 4.09 | < .001 |
| Trait Reappraisal × State Reappraisal → Valence | .10 | 0.01 | 0.01 | 1.97 | .05 |
| State Mindfulness → Valence | -.12 | -0.003 | 0.001 | -2.50 | .01 |

| | | | | | |
|---|---|---|---|---|---|
| Trait Mindfulness × State Mindfulness → Valence | .08 | 0.01 | 0.004 | 1.64 | .10 |
| **Predicting Arousal** | | | | | |
| Trait Reappraisal → Arousal | .04 | 0.12 | 0.12 | 0.95 | .34 |
| Trait Mindfulness → Arousal | .10 | 0.26 | 0.12 | 2.19 | .03 |
| State Reappraisal → Arousal | .02 | 0.001 | 0.002 | 0.40 | .69 |
| Trait Reappraisal × State Reappraisal → Arousal | .08 | 0.01 | 0.01 | 1.64 | .10 |
| State Mindfulness → Arousal | .11 | 0.004 | 0.002 | 2.24 | .03 |
| Trait Mindfulness × State Mindfulness → Arousal | .06 | 0.01 | 0.01 | 1.35 | .18 |
| **Predicting Power** | | | | | |
| Trait Reappraisal → Power | .08 | 0.18 | 0.10 | 1.86 | .06 |
| Trait Mindfulness → Power | .11 | 0.22 | 0.09 | 2.34 | .02 |
| State Reappraisal → Power | .21 | 0.01 | 0.002 | 4.45 | < .001 |
| Trait Reappraisal × State Reappraisal → Power | -.01 | -0.001 | 0.01 | -0.20 | .84 |
| State Mindfulness → Power | -.04 | -0.001 | 0.001 | -0.81 | .42 |
| Trait Mindfulness × State Mindfulness → Power | .10 | 0.01 | 0.01 | 2.13 | .03 |
| **Predicting Surprise** | | | | | |
| Trait Reappraisal → Surprise | .05 | 0.12 | 0.11 | 1.08 | .28 |
| Trait Mindfulness → Surprise | -.09 | -0.18 | 0.10 | -1.70 | .09 |
| State Reappraisal → Surprise | -.06 | -0.002 | 0.002 | -1.20 | .23 |
| Trait Reappraisal × State Reappraisal → Surprise | .16 | 0.02 | 0.01 | 3.13 | < .01 |
| State Mindfulness → Surprise | .08 | 0.002 | 0.002 | 1.63 | .10 |
| Trait Mindfulness × State Mindfulness → Surprise | -.01 | -0.001 | 0.01 | -0.11 | .91 |

**Table 15**
*Proportion of Explained Variance ($R^2$) of the Endogenous Variables in the Main Study (N = 389)*

| Items | Squared Multiple Correlations ($R^2$) |
|---|---|
| Preference for High Arousal Positive States | .13 |
| Preference to Influence Interpersonal Situations | .07 |
| Preference for Low Arousal Positive States | .09 |
| Preference to Adjust in Interpersonal Situations | .04 |
| Trait Mindfulness | .11 |
| Trait Reappraisal | .04 |
| Power Experienced during the Stimulus | .27 |
| Valence Experienced during the Stimulus | .15 |
| Arousal Experienced during the Stimulus | .19 |
| Surprise Experienced during the Stimulus | .08 |

**Cultural Socialization Predicting the Cultural Values.** Hypothesis 1 states that individuals socialized in American culture will value high arousal positive states (HAP) more than individuals socialized in Chinese culture. There was a significant difference for participant's cultural socialization and preference for HAP, $\beta = -.12$, $p = .04$. Hypothesis 1 was supported; American participants indicated valuing high arousal positive states more than participants in the Chinese culture group.

Hypothesis 2 tested whether individuals who were socialized in American culture will have a greater preference to influence interpersonal situations as compared to individuals who are socialized in Chinese culture. There was not a significant difference for participant's preference for influence and cultural socialization, $\beta = .09$, $p = .18$. Hypothesis 2 was not supported.

Hypothesis 3 states that individuals socialized in Chinese culture will value low arousal positive states (LAP) more than individuals socialized in American culture. There was a significant difference for participant's preference for LAP and cultural socialization, $\beta = -.20$, $p < .001$; however, it was in the opposite direction from that hypothesized. American participants

indicated valuing low arousal positive states more than individuals from the Chinese culture group. Hypothesis 3 was not supported.

Hypothesis 4 tested if individuals socialized in Chinese culture have a greater preference to adjust in interpersonal situations than individuals socialized in American culture. There was no significant difference for participant's preference for adjustment and culture, $\beta = .06$, $p = .34$. Hypothesis 4 was not supported.

**Predicting Trait Mindfulness and Trait Reappraisal.** Hypothesis 5 tested whether individuals who have a greater preference for high arousal positive states are more inclined to use reappraisal emotion-regulation strategies. There was a marginally significant effect between HAP and trait reappraisal in the expected direction, $\beta = .12$, $p = .05$.

Hypothesis 6 tested whether individuals who have a greater preference for influencing interpersonal situations are more inclined to use reappraisal emotion-regulation strategies. There was no significant effect, $\beta = .02$, $p = .79$.

Hypothesis 7 tested whether individuals who have a greater preference for low arousal positive states are more inclined to use mindfulness emotion-regulation strategies. There was a significant effect of LAP on trait mindfulness, but it was in the opposite direction, $\beta = -.11$, $p = .04$. The more one prefers low arousal positive state the less mindful the individual was.

Hypothesis 8 tested whether individuals who have a greater preference for adjustment in interpersonal interactions are more inclined to use mindfulness emotion-regulation strategies. There was a significant effect of preference to adjust on trait mindfulness, but it was in the opposite direction, $\beta = -.20$, $p < .001$. The more one prefers to adjust to fit in during interpersonal situation the less mindful the individual was.

Additionally, a path from the independent variable cultural socialization directly to trait mindfulness was added to improve model fit. There was a significant main effect, $\beta = -.20$, $p < .001$. Participants culturally socialized in Chinese culture indicated greater trait mindfulness then participants culturally socialized in American culture.

**Predicting the Regulation of Emotion.** In Hypotheses 9a-d, reappraisal predicted the emotional dimensions, in hypotheses10a-d, trait mindfulness predicted the emotional dimensions, and in hypotheses 11a-d, message congruency predicted the emotional dimensions.

To assess how message congruency affects one's ability to regulate emotions, participants were randomly assigned to receive either instructional messaging that was congruent with participants' emotion-regulation predispositions or were incongruent with their predisposition. It is hypothesized (H11) that participants who score higher on trait mindfulness and who score higher on state mindfulness (i.e., indicating that the mindfulness instructional message was assigned to the participant for a congruent messaging condition) will more effectively regulate their emotions relative to participants who score lower on the state mindfulness scale (i.e., indicating that the reappraisal instructional message was assigned to the participant for an incongruent messaging condition). Similarly, participants who score higher on trait reappraisal and who score higher on state reappraisal (i.e., indicating that the reappraisal instructional message was assigned to the participant for a congruent messaging condition) will more effectively regulate their emotions relative to participants who score lower on the state reappraisal scale (i.e., indicating that the mindfulness instructional message was assigned to the participant for an incongruent messaging condition).

Organized by each emotional dimension, below are the results for the effect of trait mindfulness, trait reappraisal, and the mindfulness interaction term.

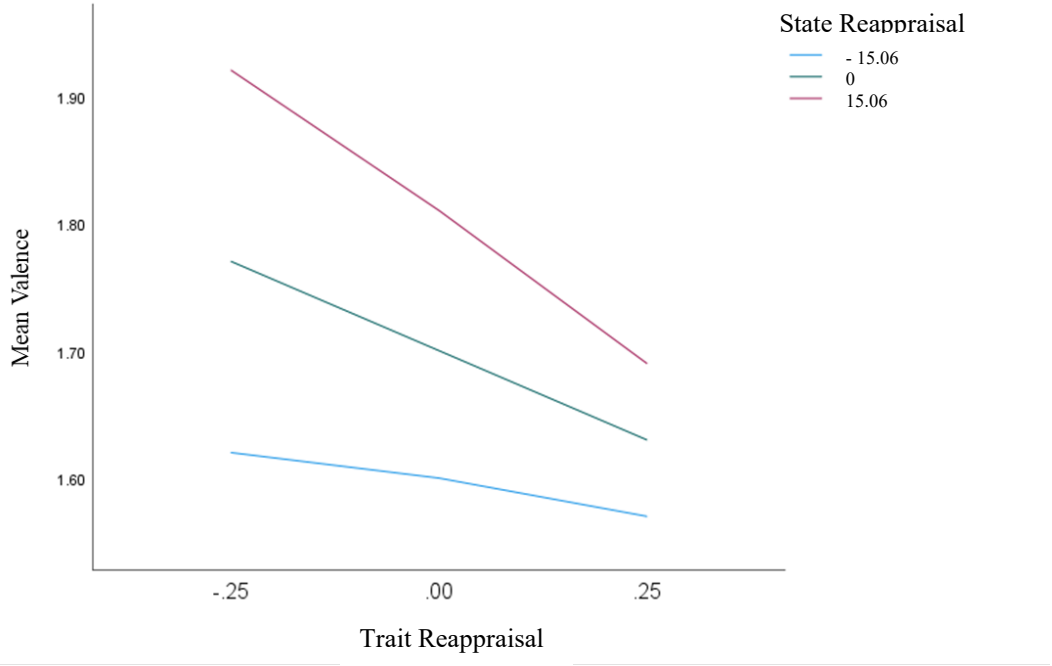
***Predicting Valence.*** Regarding Hypothesis 9a, a significant effect was found between independent variable trait reappraisal and the dependent variable valence, however it was in the opposite direction, $\beta = -.15$, $p < .001$. Therefore, the use of reappraisal emotion-regulation tactics in one's life does not result in greater regulation of valence during the stimulus video. Similarly, **t**here was not a significant main effect between the independent variable, trait mindfulness, and the dependent variable, valence measured during the stimulus video, $\beta = .07$, $p = .15$; Hypothesis 10a was not supported. The independent variable state mindfulness significantly predicted the dependent variable valence, $\beta = -.12$, $p = .01$. The more attention (a measure of the mindfulness instruction condition) participants paid during the video, the less the participants felt negative. Lastly, the independent variable state reappraisal significantly predicted the dependent variable valence, $\beta = .20$, $p < .001$. The more reappraising (a measure of the reappraisal instruction condition) participants were during the video, the less the participants felt negative valence emotion.

Two interaction terms were hypothesized to predict valence.[2] The first, Trait Mindfulness × State Mindfulness interaction, was not significant in predicting valence, $\beta = .08$, $p = .10$. The second, Trait Reappraisal × State Reappraisal interaction, was marginally significant in predicting valence, $\beta = .10$, $p = .05$. Further analysis of the interaction was conducted in SPSS PROCESS and the interaction is depicted in Figure 6. Trait reappraisal was the independent variable, the state reappraisal was the moderator, the measure of valence during the control video was entered as a covariate, and the measure of valence during the stimulus video was the dependent variable. For participants who scored lower (one standard deviation below the mean) on the state reappraisal scale assessing how well participants changed their thoughts to change their emotions during the video, trait reappraisal does not predict the valence elicited during the

stimulus video, $b = -.09$, $t(376) = -.95$, $p = .34$. For participants who indicated reappraising an average amount during the stimulus video, trait reappraisal predicted valence elicited during the stimulus video, $b = -.28$, $t(376) = -3.35$, $p < .001$. Lastly, participants who scored higher (one standard deviation above the mean) on the state reappraisal, trait reappraisal predicted valence elicited during the stimulus video, $b = -.46$, $t(376) = -3.68$, $p < .001$. From these results it is concluded that participants who scored lower on trait reappraisal were better able to follow instructions on how to regulate their emotions. Participants with lower trait reappraisal scores who received reappraisal instructions indicated more positive valence emotions during the video. Participants who were lower in trait reappraisal and received mindfulness instructions were able to experience their emotions unaltered, reporting more negatively valenced emotions. See Figure 6 for a graph of the interaction.

**Figure 6**

*Interaction of Trait and State Reappraisal to Predict Valence in the Main Study*




*Note.* -15.06 refers to a group of participants who indicated using reappraisal tactics to a lesser extent during the stimulus as defined by scores that were from the lowest value to one standard deviation below the mean on the state reappraisal scale; .00 refers to participants who indicated reappraising an average amount during the stimulus as represented by values between one standard deviation below and above the mean on the state reappraisal scale; 15.06 refers to participants who indicated using reappraisal tactics the most during the stimulus as defined by scores that were from the highest value to one standard deviation above the mean on the state reappraisal scale.

***Predicting Power.*** There was a marginally significant main effect between the independent variable trait reappraisal and the dependent variable power measured during the stimulus video. As hypothesized, the more reappraisal tactics individuals indicated using in their daily lives, the more powerful individuals felt to face the negatively valenced emotion-eliciting stimulus, $\beta = .08$, $p = .06$; Hypothesis 9b was partially supported.

There was a significant main effect between the independent variable, trait mindfulness, and the dependent variable, power measured during the stimulus video. The more mindful an individual was the more powerful the individual felt during the negatively valenced emotion-

eliciting stimulus, β = .11, $p$ = .02; Hypothesis 10b was not supported as results were significant but in the opposite direction.

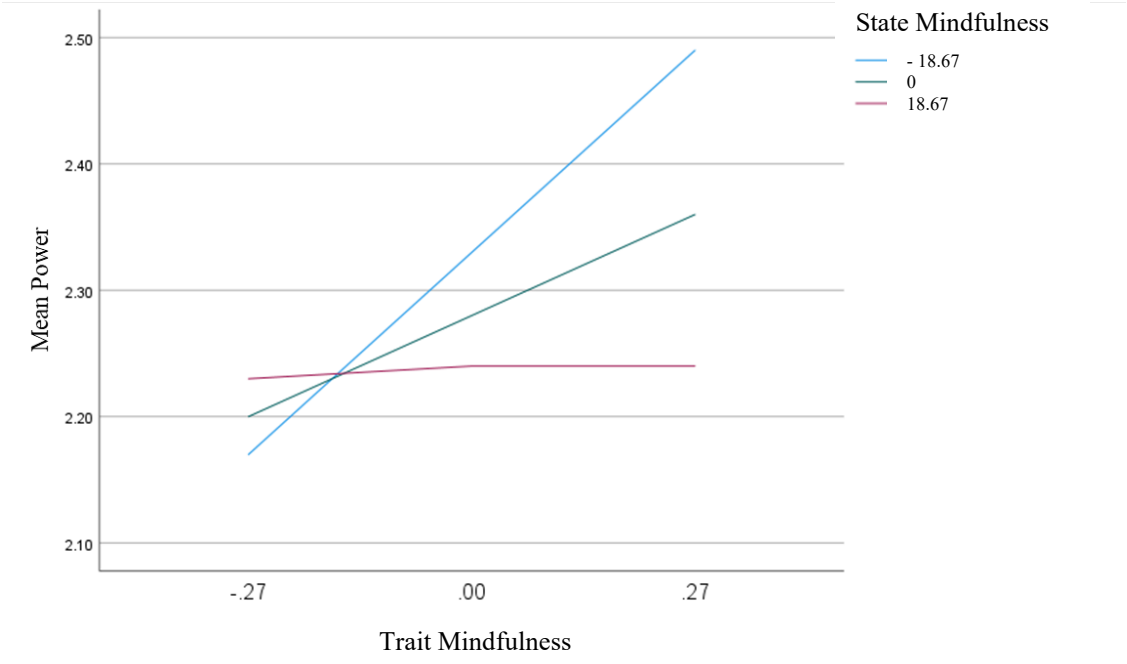
There was a significant main effect between the independent variable, state reappraisal, and the dependent variable, power measured during the stimulus video. The more reappraisal tactics individuals indicated using in during the video, the more powerful individuals felt to face the negatively valenced emotion-eliciting stimulus, β = .21, $p$ < .001. No significant main effect between state mindfulness and power experienced was found, β = -.04, $p$ = .42.

Two interaction terms were hypothesized to predict power.[2] The first, Trait Reappraisal × State Reappraisal interaction was not significant in predicting power, β = -.01, $p$ = .84. The second, Trait Mindfulness × State Mindfulness interaction was significant in predicting power, β = .10, $p$ = .03. Further analysis of the interaction was conducted in SPSS PROCESS and the interaction is depicted in Figure 7. Daily mindfulness was the independent variable, the state attention item was the moderator, the measure of power during the control video was entered as a covariate, and the measure of power during the stimulus video was the dependent variable. For participants who scored lower (one standard deviation below the mean) on the state attention item assessing how mindful participants were during the video, trait mindfulness predicts the power elicited during the stimulus video, $b$ = .59, $t$(376)= 3.91, $p$ < .001. For participants who indicated paying about average attention during the stimulus video, trait mindfulness predicts power elicited during the stimulus video, $b$ = .30, $t$(376) = 3.02, $p$ < .01. Lastly, participants who scored higher (one standard deviation above the mean) on the attention item, trait mindfulness does not predict power elicited during the stimulus video, $b$ = .01, $t$(376) = .12, $p$ = .91. From these results it is concluded that participants in the incongruent message condition (i.e., high trait mindfulness and low state mindfulness) had more positive power scores in contrast to

participants in the congruent mindfulness condition (i.e., high trait mindfulness and high state mindfulness). See Figure 7 for a graph of the interaction.

**Figure 7**

*Interaction of Trait and State Mindfulness to Predict Power in the Main Study*




*Note.* -18.67 refers to grouping of participants who indicated paying the least amount of attention during the stimulus as defined by scores that were from the lowest value to one standard deviation below the mean on the state mindfulness scale; .00 refers to participants who indicated paying an average amount of attention during the stimulus as represented by values between one standard deviation below and above the mean on the state mindfulness scale; 18.67 refers to participants who paid the most attention during the stimulus as defined by scores that were from the highest value to one standard deviation above the mean on the state mindfulness scale.

***Predicting Arousal.*** There was not a significant main effect of trait reappraisal predicting arousal during the stimulus video, β = .04, $p$ = .34; Hypothesis 9c was not supported. There was a main effect of the independent variable, trait mindfulness, on the dependent variable, arousal, β = .10, $p$ = .03; Hypothesis 10c was not supported as the effect was in the opposite direction. There was a significant main effect of the independent variable, state mindfulness, on the dependent variable, arousal, β = .11, $p$ =.03. Lastly, there were no significant main effects from the independent variables, state reappraisal (β = .02, $p$ =.69), Trait Mindfulness × State

Mindfulness (β = .06, *p* =.18), nor Trait Reappraisal × State Reappraisal (β = .08, *p* = .10) to dependent variable arousal.

***Predicting Surprise.*** There was not a significant main effect between the independent variable, trait reappraisal, and dependent variable, surprise experienced during the stimulus video, β = .05, *p* =.28; Hypothesis 9d was not supported. There was not a main effect of the independent variable trait mindfulness on the dependent variable surprise, β = -.09, *p* =.09; Hypothesis 10d was not supported. Similarly, there was not a main effect of the independent variable state mindfulness on the dependent variable surprise, β = -.06, *p* =.23, and the state reappraisal independent variable on surprise, β = .08, *p* =.10.

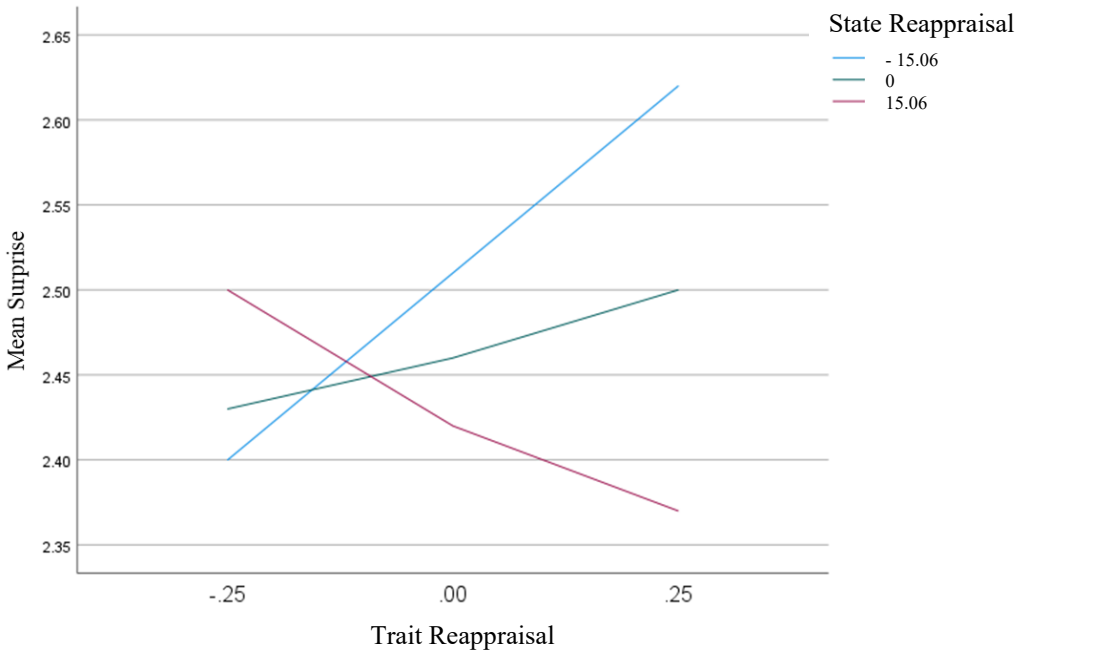
Two interaction terms were hypothesized to predict surprise.[2] The first, Trait Mindfulness × State Mindfulness interaction was not significant in predicting surprise, β = -.01, *p* = .91. The second, Trait Reappraisal × State Reappraisal interaction did significant predict surprise, β = .16, *p* = .002.

Further analysis of the interaction was conducted in SPSS PROCESS and results of the interaction are represented in Figure 8. Trait reappraisal was the independent variable, the state reappraisal scale was the moderator, the measure of surprise during the control video was entered as a covariate, and the measure of surprise during the stimulus video was the dependent variable. For participants who scored lower (one standard deviation below the mean) on state reappraisal, assessing how well participants altered their thoughts during the video, trait reappraisal predicts surprise elicited during the stimulus video; *b* = .45, *t*(376)= 3.07, *p* < .01. In other words, for participants with low state reappraisal during the stimulus video, their trait reappraisal predicted the surprise felt during the video. For participants who indicated an average amount of state reappraisal during the stimulus video, trait reappraisal did not predict the surprise elicited during

the stimulus video, $b = .13$, $t(376) = 1.12$, $p = .26$. Similarly, participants who scored higher (one standard deviation above the mean) on state reappraisal, trait reappraisal did not predict surprise elicited during the stimulus video, $b = -.19$, $t(376) = -1.06$, $p = .29$. From these results it is concluded that Hypothesis 11d was not supported. The ability to regulate surprise was not dependent on message congruency. Participants who indicated a greater use of reappraisal in their daily lives, as indicated by trait reappraisal scores, were better able to follow both mindfulness and reappraisal emotion-regulation instructions. Mindfulness instructions asked participants to feel their emotion unaltered resulting in greater levels of surprise felt. Reappraisal instructions asked participants to alter their thinking resulting in lower levels of surprise felt. See Figure 8 for a graph of the interaction.

***Figure 8***

*Interaction of Trait and State Reappraisal to Predict Surprise in the Main Study*




*Note.* -15.06 refers to a group of participants who indicated using reappraisal tactics to a lesser extent during the stimulus as defined by scores that were from the lowest value to one standard deviation below the mean on the state reappraisal scale; .00 refers to participants who indicated reappraising an average amount during the stimulus as represented by values between one standard deviation below and above the mean on the state reappraisal scale; 15.06 refers to participants who indicated using reappraisal tactics the most during the stimulus as defined by scores that were from the highest value to one standard deviation above the mean on the state reappraisal scale.

# Chapter 8: Discussion

This dissertation is an exploratory study investigating the cultural dependence of emotion-regulation strategies. In Chapter 2, culture was defined through the lens of symbolic interaction theory, emphasizing the importance of socialization (Fink, 2016). I argued that it is through socialization that cultural values are transmitted and meaning is created, which includes emotional responses to stimuli and, accordingly, the regulation of those emotions.

The exploration of how cultural socialization influences different emotion-regulation strategies creates opportunities for communication scholars to investigate the role that emotion-regulation messaging has in the use, transmission, and effectiveness of different strategies. This research initiative can be studied in the context of intrapersonal, interpersonal, and intercultural and group communication, having implications for many different areas of communication such as persuasion, health communication, education, international affairs, sports communication, and media influence. Although research on the cultural dependence of emotion-regulation strategies has great heuristic value, scope, and utility, to my knowledge researchers have not begun to explore this topic. Previous research has explored 1) how reappraisal and mindfulness are distinct strategies (Chambers et al., 2009; McRae et al., 2008), both effective at downregulating uncomfortable emotions (Gross & John, 2003; Nyklíček, 2011); (2) the relationship between cultural socialization and various cultural values (Arnett, 1995; Morling et al., 2002; Tsai, 2007); and (3) the effects of message congruency on persuasion (Halperin & Schori-Eyal, 2020; Resnicow et al., 1999).

From a review of previous research, this dissertation proposes an exploratory investigation on whether 1) there is a difference in intrapersonal preference for mindfulness and reappraisal that can be predicted by cultural socialization and 2) whether congruent

emotion-regulation strategic messaging can affect the relationship between preferences for an emotion-regulation strategy and the regulation of emotions. A theoretical model for investigating these topics was proposed and empirically tested with results suggesting some support for the cultural dependence of emotion-regulation strategies and the effect of emotion-regulation message congruency (see Figure 5).

As part of this dissertation's Pilot Study 1, three instructions were created, one that instructed participants to use mindfulness as an emotion-regulation technique, a second that instructed participants to use reappraisal tactics as an emotion-regulation technique, and a third that served as a control condition in which participants were asked to watch the film without any guidance on how to regulate their emotions. The three instructions were randomly assigned to participants, and the instructions' effectiveness were tested using state mindfulness and state reappraisal scales. The mindfulness and reappraisal messages were retained from the pilot study for the main study with some minor alterations, such as shortening the messages and bolding key concepts. The control message condition was removed from the main study after participant interviews suggested that the instructions were confusing and too similar to the mindfulness instructions.

As part of Pilot Study 2, a negatively valenced emotion-eliciting film depicting distressing incidences of student bullying was created. The emotional valence of the created film was compared to a neutral video depicting nature scenes. As predicted, both the American and Chinese cultural groups found the emotion-eliciting film to be more negatively valenced than the neutral film, and thus both films were retained in the main study.

The third pilot study tested mindfulness in Chinese and American participants to confirm the prediction that international Chinese students attending universities in the mid-

Atlantic region of the U.S. would exhibit greater mindfulness than American students at those same universities. Mindfulness scores were significantly higher for the international Chinese students at the selected universities as compared to the American participants, and therefore mindfulness was retained as a key construct of this dissertation.

The main study in this dissertation included a series of survey questions measuring participants' preference for high arousal positive states (HAP), preference for low arousal positive states (LAP), preference for being influential in interpersonal relationships, preference for adjusting in their interpersonal relationships, a measure of cultural socialization, state and trait mindfulness, and state and trait reappraisal, as well as the emotions participants felt after watching a neutral film and a negatively valenced emotion-eliciting film. Additionally, participants were randomly assigned to a message condition that encouraged the use of either reappraisal tactics or mindfulness tactics to regulate their emotions while watching the negatively valenced emotion-eliciting film. The resulting emotions after each video were measured on four dimensions: valence, power, arousal, and surprise.

Presented in the sections that follow is a discussion of the results organized by the four objectives of the study: (1) Does cultural socialization predict cultural values?; 2) Does cultural socialization predict emotion-regulation strategy either directly or indirectly via cultural values?; 3) How effective are mindfulness and reappraisal strategies as measured by the four emotional dimensions, valence, power, arousal, and surprise?; and (4) What is the effect of congruent emotion-regulation messaging on the effectiveness of regulation strategies, as measured by the four emotional dimensions, valence, power, arousal, and

surprise. For each of these objectives, extant literature is referenced, informing the discussion on implications and suggestions for future research.

**Objective 1: Does Cultural Socialization Predict Cultural Values?**

One of the objectives of this dissertation was to identify cultural values that explain how cultural socialization influences emotion-regulation strategies. Cultural socialization was hypothesized to predict four cultural values: preference for HAP states, preference for influential interpersonal interactions, preference for LAP states, and preference for adjustment during personal interactions. The partially supported results for the study's hypotheses regarding HAP and LAP are presented below, followed by results of the null effect found for hypotheses that include preference for influencing and adjusting in interpersonal situations.

***HAP and LAP***

From affect valuation theory two cultural values were identified, HAP, and LAP (Tsai, 2007). Both HAP and LAP were used in this dissertation to examine how cultural socialization can influence the values a person holds regarding affective states. Chapter 2 presents evidence from a review of the literature on how LAP states differ from HAP states for Chinese and American cultural groups (Tsai, 2007).

The results regarding Hypotheses 1 and 3 offer some support for the relationship of cultural socialization and ideal affect. There was a significant main effect between HAP states and cultural socialization: American participants reported valuing high arousal positive states more strongly than did Chinese participants. Unexpectedly, American participants also reported valuing LAP states significantly more than Chinese participants. These findings suggest Americans place greater value than do Chinese individuals on positive affective states regardless of the arousal levels (high or low).

Though Americans' preference for both high and low positive affect was not anticipated, research on cultural differences and emotions suggests that Americans are more uncomfortable experiencing negative emotions than are Chinese individuals (Bagozzi et al., 1999; Heine et al., 2001; Miyamoto et al., 2010; Sims et al., 2015; Spencer-Rodgers et al., 2010; Uchida & Kitayama, 2009). Therefore, it seems that regardless of high or low arousal levels, Americans value positive emotions to a greater extent than do the Chinese. Accordingly, future research needs to test the reliability of the results found in this research: American cultural socialization predicts greater preferences for positive emotions and an aversion to negative emotions as compared to individuals socialized in the Chinese culture.

Furthermore, if Americans are socialized to value positive affect to a greater extent than Chinese, then consistent with the theoretical framework presented in this research, reappraisal is still the optimal emotion-regulation strategy for individuals who value positive affect significantly more than negative affect. Reappraisal strategy, by definition, allows individuals to change the appraisal of a stimulus thus changing the resulting emotion; individuals can use reappraisal to change how a stimulus is evaluated such that the resulting emotion is more positively valenced (Ray et al., 2010). Alternatively, mindfulness is the nonjudgmental attention and awareness of an emotional experience resulting in the acceptance of an emotion whether it is positively or negatively valenced (Grecucci et al., 2015; Wheeler et al., 2017). Mindfulness would not be an optimal strategy to use if one values positive emotion and has an aversion to negative emotions.

To conclude, American cultural socialization significantly predicts valuing both HAP and LAP affective states more so than do Chinese participants. However, with further investigation, these results may still be consistent with the theoretical framework presented in Chapter 3 that

cultural socialization predicts cultural values regarding ideal affect. In the next section, the null effect found between cultural socialization and preference to influence and adjust in interpersonal situations is explained.

***Preferences for Influencing and Adjusting***

In this research, a person's approach to an interpersonal situation can be understood in terms of two cultural values, the preference for influencing others or the preference for adjusting to them. Results from this study did not support Hypotheses 2 and 4. There was no significant effect from cultural socialization to preference for adjusting to fit in during interpersonal situations. Similarly, there was no significant effect from cultural socialization to the preference for influencing interpersonal situations.

In Chapter 3, I cited literature suggesting that European American culture promotes norms of independence and self-reliance, resulting in Americans exerting influence to fulfill their own needs (Morling et al., 2002; Triandis, 1995; Weisz et al., 1984). On the other hand, members of more collectivistic cultures see themselves as interdependent and thus value adjustment (Morling et al., 2002; Triandis, 1995; Weisz et al., 1984). Values of independence and interdependence are influenced by Hofstede's cultural dimension and thus criticisms of Hofstede's cultural dimensions are used to explain the null effect found in this study. Specifically, two criticisms for using the cultural dimensions independence and interdependence are elaborated on to understand why cultural values of influence and adjustment did not predict emotion-regulation strategies.

First, evidence for variations on the cultural dimension of independence and interdependence can be found within national borders validating the criticism that when using cultural dimensions, nations do not equate to culture (Baskerville, 2003; DiMaggio, 1997;

McSweeney, 2002). For example, the assumption that Americans value independence and self-reliance, with a focus on the individual's own needs, is inconsistent with research on social identity theory (Abrams & Hogg, 2001; Tajfel & Turner, 2004) and in-group favoritism (Brewer, 1979; Mullen et al., 1992), conducted within U.S. national borders. In-group favoritism is evident in research conducted in the U.S. showing that political party affiliation is a significant predictor of party ratings, ideology, and party activities (Greene, 2004). Similarly, in the evaluation of U.S. college basketball spectators, in-group bias was most pronounced when social identity was threatened (Wann & Grieve, 2005). Atwell Seate and Mastro (2017) found in a U.S. sample that group-level emotions mediated the effect between mediated intergroup threat and active and passive intergroup behaviors. All these studies demonstrate that participants from the U.S. vary on the spectrum of independence to interdependence and thus stating that Americans value independence is overly simplistic. Therefore, the use of preference to adjust and influence, which comes from the literature on independence and interdependence, may not accurately reflect cultural socialization of all Americans and all Chinese individuals.

Second, the complexities of a culture cannot be reduced into dichotomous cultural dimensions (e.g., attributes) and instead researchers need to understand the "dynamic and adaptive nature of the balance between such attributes" (Baskerville, 2003, p. 8). For example, research on in-group favoritism and group enhancement tendencies within Americans has resulted in researchers Brewer and Chen (2007) suggesting that Americans are not necessarily independent and instead value belonging and connectedness with their in-group. Furthermore, the overgeneralizing notion that collectivistic cultures are harmonious and foster cooperative in-group relationships has recently been challenged. Liu et al. (2019) found that collectivistic cultures are more vigilant towards in-group members compared to Americans. In their research,

Chinese participants expected more unethical behavior and competition from their in-group than did Americans evaluating their in-group peers. Similarly, in a study of collectivistic rice farmers and individualistic wheat farmers in China, the rice farmers exhibited greater vigilance towards their in-group, with in-group competition mediating the effect (Liu et al., 2019). Therefore, though there may be some evidence to suggest interdependent cultures value harmony (Brewer & Chen, 2007), cultures are more complex. It is essential to have a more balanced understanding of cultural attributes and accordingly researchers need to consider how different cultural values influence each other.

Given the complexities involved in distinguishing between cultures based on values such as independence and interdependence, belongingness and harmony, and group favoritism and group vigilance, future research needs to include (1) a greater specificity in context when studying values, and (2) a broader range of cultural values to understand how the cultural values influence each other, curating a culture group's identity. First, specifying the context will allow researchers to help tease apart when influence versus adjustment strategies are effective and the role that cultural socialization and emotion regulation play in the selection of one strategy over another. For example, the instructions for the scales measuring the preference to influence versus to adjust were regarding an interaction with a close friend; however, additional clarification on the motivation for interacting (e.g., friends interacting in a situation where there exists an imbalance of power) will generate clearer understandings of when people use influence versus adjustment strategies. Therefore, part of the null effect can be attributed to the insufficient context provided in the instructions for the scale measuring preference to adjust versus influence.

Secondly, in addition to the cultural values of adjustment versus influence, researchers need to expand the range of cultural values to include concepts such as group vigilance,

competition, harmony, and belongingness. An investigation into different types of cultural values will help explain how the different values influence each other shedding light on (1) how cultural values collectively reflect a culture and (2) why certain culture groups differentially use mindfulness versus reappraisal. For instance, researchers could investigate the relationship between group vigilance and harmony within a cultural context to better understand the use of mindfulness, as both values require greater awareness, as suggested by Liu et al. (2019).

Overall, the paths from cultural socialization to cultural values, preference to influence, and preference to adjust were not significant. Future research needs to specify the context in studying cultural values in addition to broadening the number of cultural values to better reflect the culture being studied. In the next section, cultural socialization's direct and indirect influence on mindfulness and reappraisal, are explored.

**Objective 2: Influences on Emotion-Regulation Strategies**

This section presents evidence for the second objective of this study: Is the use of emotion-regulation strategies (i.e., reappraisal and mindfulness) culturally dependent? Based on previous research, it was hypothesized that Americans are socialized to have a greater preference for HAP states (Tsai, 2007) and a preference for influencing interpersonal situations (Morling et al., 2002), thus making Americans more inclined to use reappraisal strategies in their daily lives to regulate emotions. Alternatively, Chinese individuals are socialized to have a greater preference for LAP states (Tsai, 2007) and a preference for adjusting to interpersonal situations (Morling et al., 2002), thus making Chinese individuals more inclined to use mindfulness strategies in their daily lives to regulate emotions.

HAP affect did significantly predict the use of reappraisal in daily life, as measured by the trait reappraisal scale. However, the preference for influencing interpersonal relationships did

not significantly predict trait reappraisal. Furthermore, neither did LAP nor preference for adjustment predict daily use of mindfulness, as measured by trait mindfulness. The addition of a path from cultural socialization to trait mindfulness was significant, such that Chinese participants indicated significantly greater levels of daily mindfulness than American participants.

Overall, this research found preliminary support for the cultural dependence of the emotion-regulation strategies of mindfulness and reappraisal. In the next section, the third objective of this research, testing the effectiveness of the emotion-regulation strategies, is discussed.

**Objective 3: Emotion-Regulation Strategies' Influence on Emotional Dimensions**

Reappraisal and mindfulness emotion-regulation strategies were tested for their effect on the emotional dimensions (valence, power, arousal, and surprise). Each strategy's effects on the emotional dimensions are presented below. I begin with a discussion of the main effects of reappraisal followed by the main effects of mindfulness.

***Main Effects of Trait Reappraisal on Emotions Regulated***

Four hypotheses were proposed that predicted the effect of trait reappraisal on the emotional dimensions of valence, power, arousal, and surprise. An increase in trait reappraisal was expected to result in an increase in valence and power and a decrease in surprise and arousal. However, results suggested no significant difference in levels of trait reappraisal and the emotional dimensions of arousal and surprise. There was a significant effect of trait reappraisal on valence and power, in which power increased as predicted, but valence decreased, contrary to the hypothesis. Participants who reported greater utilization of reappraisal in their daily lives felt more powerful while watching the negatively valenced emotion-eliciting video. In other words,

by reappraising the emotion-eliciting video stimulus, participants were able to manage how empowered they felt. Alternatively, participants who reported greater utilization of reappraisal in their daily lives felt more negatively valenced emotions when watching the emotion-eliciting video. This effect was unexpected considering the amount of empirical research on the regulation potential of reappraisal in the face of uncomfortable emotions (e.g., cognitive reappraisal therapy techniques to aid in the reduction of negatively valenced emotions).

As a potential explanation for the negative valenced emotions experienced and the null effect of arousal and surprise, it is possible that participants in the study were not motivated to regulate their emotions as the emotion-eliciting stimulus in this study was not discomforting enough. The emotion-eliciting video was negatively valenced, designed to elicit sadness through a compilation of clips depicting student bullying. Pilot Study 2 tested the emotion eliciting video; results indicated that the stimulus video elicited more negatively valenced emotions relative to the neutral video that depicted nature scenes. Despite the stimulus video eliciting negatively valenced emotions, perhaps participants were not motivated to use reappraisal as a tactic for emotion regulation because the film was not sad enough, thus not warranting the regulation of emotion. Future research should use a different emotion-eliciting procedure, such as reminiscing mood induction (Fakhrhosseini & Jeon, 2017; Gilboa-Schechtman et al., 2000), which requires more active participation from the participant in contrast to passively watching a video. An example of a reminiscing mood induction is to ask participants as part of the study to write memories of aversive, uncomfortable personal experiences. The reminiscing mood induction coupled with emotion-eliciting music and imagery may be more intense and thus create greater motivation for individuals to regulate their emotions (see Siedlecka & Denson, 2019 and Zhang et al., 2014 for comparative analyses of different emotion eliciting techniques in experimental

research). If the motivation to regulate uncomfortable emotions was increased, the emotion-regulation ability as measured by post-regulation emotions may be more telling of the effectiveness of the reappraisal strategy. In summary, a study with a more intense emotion-eliciting stimulus may be necessary to validate the nonsignificant effects of reappraisal before any conclusions can be drawn about the ineffectiveness of the strategy for regulating distressing emotions.

***Main Effects of Trait Mindfulness on Emotions Regulated***

The main effect of trait mindfulness on the emotional dimensions of valence, arousal, surprise, and power was not supported here. It was predicted that participants who are more mindful will be better able to regulate their emotions and report lower valence, arousal, and empowerment levels as well as greater surprise. This was expected because people who are more mindful are more accepting and nonjudgmental of their emotions as they experience them. Contrary to Hypotheses 10a-d, no effect for valence and surprise was found, and the effects for arousal and power were in the opposite direction from what was hypothesized: Trait mindfulness resulted in an increase in arousal and an increase in power.

To explain these results, the need to accept distressing emotions in mindfulness is explored, and a recommendation to include additional measures of emotional acceptance is provided. In this research emotional dimensions were used as a measure to assess mindfulness emotion regulation; however, in addition to measuring emotional dimensions, a measure assessing the success of mindfulness regulation is needed. The mindfulness literature states that emotion regulation through mindfulness does not change emotions but rather causes a change in mindset. Mindfulness is a detached acceptance of emotions (Grecucci et al., 2015; Wheeler et al., 2017). Emotions are experienced in an unaltered form, and it is the person's evaluation of them

that changes. For example, sadness is still sadness, but it is not evaluated as uncomfortable or aversive. The process of regulation includes experiencing the emotions of the negatively valenced film but in a detached manner such that the emotions are not uncomfortable and thus do not need to be acted upon. In this study, participants' emotions were recorded in response to the stimulus measure but how the participants evaluated their emotional experience was not assessed. If the emotions experienced were evaluated as discomforting, then the emotions elicited were not regulated; however, if discomfort was not experienced, that would be evidence of nonjudgmental attachment and awareness, suggesting that mindfulness regulation had occurred. Therefore, the inconclusive results regarding emotion regulation through mindfulness could be explained by including a mediating variable that measures how accepted or discomforting the emotions elicited by the stimulus was.

Overall, regarding objective 3, the direct effects of the emotion-regulation strategies on the emotional dimensions are inconclusive. Additional research needs to consider the effects that mindfulness and reappraisal have in the face of more intense emotion-eliciting stimuli that create a greater need to regulate an emotion. Also, to measure if mindfulness strategy is being implemented effectively by an individual, researchers must assess how accepting the individual is of discomforting emotions they are experiencing. The last objective of this research considered the effects of message congruency on the four emotional dimensions, valence, power, arousal, and surprise.

**Objective 4: Testing Message Congruency Effects**

For objective 4, the effectiveness of emotion-regulation strategy message congruency was tested. Message congruency research suggests that messages are most effective when they are consistent with an individual's personality traits and characteristics (Halperin & Schori-Eyal,

2020; Resnicow et al., 1999). Message congruency can be tested in the context of interpersonal emotion-regulation strategies. When looking for ways to aid others in regulating their emotions, research suggests that message congruency can have important consequences for social support related to mental health (Marroquín, 2011), romantic relationships (Debrot et al., 2013), and athletic success (Friesen et al., 2013), to name a few examples. Message congruency was tested in this study by assigning participants to receive instructions on how to regulate their emotions using either mindfulness tactics or reappraisal tactics. A separate measure of the participant's trait mindfulness and trait reappraisal was collected. It was hypothesized that those who are more mindful and who receive mindfulness messaging (congruent message condition) would be better at regulating their emotions than individuals in the incongruent condition in which they score high on trait mindfulness but are provided with reappraisal emotion instructions. Similarly, those who rated higher on trait reappraisal and who receive reappraisal messaging (congruent message condition) will be better at regulating their emotions than individuals in the incongruent condition in which they score high on trait reappraisal but are provided with mindfulness emotion regulation instructions. Emotions were measured on the four emotional dimensions: valence, arousal, power, and surprise.

Reappraisal message congruency significantly predicted valence and surprise such that participants that reported greater trait reappraisal regulated their emotions differently depending on if received congruent or incongruent messaging. Similarly, mindfulness message congruency significantly predicted power. The results regarding mindfulness message congruency are considered below, followed by the results for reappraisal message congruency.

For individuals who have lower levels of daily mindfulness as measured by the trait mindfulness scale, the instructional messaging administered (mindfulness or reappraisal) did not

affect the empowerment felt in response to an uncomfortable stimulus (see Figure 7). However, for participants who are more mindful in their daily lives, the congruency of the message (mindfulness instructions administered vs. reappraisal instructions) significantly changed the emotional experience regarding power. More mindful individuals who received mindfulness instructions reported lower levels of empowerment compared to more mindful individuals who received reappraisal instructions (see Figure 7). This result suggests that people who are more mindful are better at following instructions; for example, (1) if instructed to use reappraisal tactics, mindful individuals can successfully change their thinking such that they feel greater empowerment; and (2) if instructed to use mindfulness tactics, more mindful individuals will indicate less empowerment, reporting their emotions in an unaltered manner consistent with mindfulness.

Message congruency for those high in reappraisal tendencies affected two emotional dimensions, valence and surprise. Specifically, in predicting valence, individuals who indicated greater use of reappraisal tactics in their daily lives reported more negatively valenced emotions; this effect was unaffected by message congruency (see Figure 6). Alternatively, message congruency did predict valence for individuals who reported having lower preferences for reappraisal. If an individual reports lower daily reappraisal tendencies and is given reappraisal instructions, the individual will feel more positively valenced emotions; however, if provided with mindfulness instructions, the individual will feel more negatively valenced emotions. Therefore, an individual who is lower in daily reappraisal tendencies is better able to follow emotion-regulation instructions regardless of whether the instructions recommend reappraisal or mindfulness.

The second emotion affected by reappraisal message congruency was surprise. Those who were more reappraising in their daily lives and who received congruent messaging (reappraisal instructions) had the lowest surprise scores; as predicted, reappraisal leads to feelings of less surprise (see Figure 8). People who were good at reappraising in their daily lives but received incongruent messaging (mindfulness instructions) reported the highest amount of surprise in response to the video, consistent with mindfulness theory, which would suggest that participants who are asked to pay attention to the video without changing their emotions would report greater levels of surprise. It can be concluded that regarding surprise, those who are more reappraising can follow both reappraisal and mindfulness emotion-regulation instructions.

Overall, message congruency was effective at affecting emotions experienced but that was not consistent across all dimensions or for both reappraisal and mindfulness strategies. Future research needs to include emotional intelligence as a construct to better differentiate people's capabilities for using emotion-regulation strategies. Emotional intelligence is defined as the "ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought" (Mayer et al., 2008, p. 511). Individuals with greater emotional intelligence have an enhanced ability to understand and problem-solve issues dealing with the management of emotional responses. Consistent with some evidence regarding objective 4, participants who are better at reappraising or at being mindful were also more able to follow instructions regarding regulation, regardless if the instructions were congruent or incongruent with the individual's preferences. Emotional intelligence may be a moderator of how effectively individuals use strategies and how receptive they are to congruent and incongruent emotion-regulation messaging.

**Application**

In studying the cultural dependence of emotion regulation instructions, this section considers a few relevant areas of application for this research. First, this study demonstrated how an appraisal theory framework can be used to generate messaging that stimulates negative affect. The success of the messaging was empirically tested, validating appraisal theory's application in creating emotion eliciting messages.

Second, the emotion regulation instructions created in this study primed participants on how to receive stimuli that results in negative affect. The study of message priming to influence emotions in others is useful when preparing people to receive news that is negatively valenced (e.g., sad, uncomfortably, disheartening). For example in the context of interpersonal communication, medical practitioners can benefit from understanding how their communication can influence emotion regulation and the use of different strategies when speaking with patients who are dealing with medical ailments. Additionally, leaders such as politicians must also understand how to craft emotion regulation messaging and be keen to how that messaging is received when addressing problems and concerns.

Lastly, given the preliminary support for the cultural dependence of emotion-regulation strategies found in this study, further investigation into the effects of message congruency on persuasion is warranted (Hornikx & O'Keefe, 2009). This study substantiates the need to investigate the research question, can understanding how individuals regulate their emotions help others adapt messaging in efforts for a more favorable, persuasive, reception? Interpersonal message congruency may be a useful technique for preparing messages, given that there exists group differences regarding emotion-regulation strategies.

**Limitations and Future Research**

In this section, several limitations of this dissertation are discussed.

First, the international Chinese student sample used in this study may not be representative of all people socialized in the Chinese culture, especially those still on mainland China. An objective of this research was to demonstrate the cultural dependence of emotion-regulation strategies; however, in this research, the sample of participants reflecting Chinese cultural socialization were international students from China who arrived in the U.S within the last five years and were currently attending universities in the United States. International Chinese students and mainland Chinese individuals may differ in their ability to regulate emotions and in their values; international Chinese students may have started integrating into American culture and may have different characteristics then Chinese individuals who cannot afford attending college in the U.S., who lack language capabilities to study in the U.S., or who do not wish to attend college in the U.S. Therefore, future research should include a sample of participants who are socialized in Chinese culture but are not international students to determine if Chinese cultural socialization influences emotion-regulation strategies or if characteristics regarding international students (e.g., SES, language skills, social support) drives the differential use of reappraisal and mindfulness by culture.

Second, the instructions for the reappraisal and mindfulness conditions were expected to result in increased use of reappraisal and mindfulness during the stimulus video. Participants' utilization of these strategies was assessed using state reappraisal and state mindfulness scales. Though the reappraisal condition predicted state reappraisal scores, the mindfulness condition did not predict state mindfulness scores. This nonsignificant finding may be attributed to the unrealistic expectation that after reading a short instructional passage, participants can become

more mindful. Mindfulness may be a state of mind that takes time and practice to develop (Greeson, 2009). Future research manipulating the use of the strategies should spend substantially more time training participants to ensure they can follow the emotion-regulation instructions.

Third, as mentioned earlier, a broader range of cultural values needs to be tested to determine which of the cultural values are key when exploring the role of cultural socialization in the adoption of emotion-regulation strategies. Culture research is often complicated; it is important to test both intercultural and intracultural variations to distinguish between influences that are due to culture versus due to other potential sources. For example, value placed on family connectedness may reflect cultural differences, but also it may reflect the role a member of the family may hold (e.g., caretaker vs. wage-earner). Therefore, to address the challenge of deciphering cultural influences from other influences, a larger array of theoretically relevant cultural factors could be used to help elucidate which cultural values influence the use of emotion-regulation strategies. Accordingly, additional analyses may provide reliable cultural values that can be used for greater in-depth understanding of how cultural socialization shapes the promotion of emotion-regulation strategies.

Fourth, the emotions elicited by the neutral and stimulus videos were measured on four emotional dimensions. The four dimensions were self-report retrospective measures of participants' experiences. Future research should use multiple methods of assessing participants' emotional experiences, such as the Analogical Emotional Scale, which involves graphing emotions as they are experienced in real time (Oceja & Carrera, 2009), and physiological measures that use biosensors (Fernández et al., 2012).

Fifth, the control instructions in this dissertation were eliminated (see results from Pilot Study 1 for a detailed discussion); however, with more resources (e.g., time to pilot test alternative control instructions and a larger sample size), adding a control group might provide for meaningful comparisons. The control condition would be designed to mimic participants' unaltered responses to emotion-eliciting stimuli, whereas, in the other two conditions, participants would be provided with emotion-regulation instructions. The control condition may provide evidence of how emotions change when regulated via the instructions provided and when left unaltered, reflecting relatively more naturalistic emotional experiences.

Sixth, for future research the cultural dependence of emotion regulation strategies should be analyzed using multi-group SEM. For a multi-group SEM, a larger sample size is required. A multigroup SEM will allow for an exploration as to how the paths between the constructs are both similar and different for each culture group rather than assuming and imposing the same paths for both cultures (Selig et al., 2015).

Lastly, two key technicalities in this research need to be addressed. The sample size for international Chinese students was short of the minimum of 200 determined by a priori analysis. A larger sample would allow for multi-group structural equation modeling, wherein paths between constructs can be specified by culture. Additionally, this research was administered online, where participants could have been distracted when completing the study. This study was conducted online as a precautionary measure to limit exposure between researchers and participants in the context of the Covid-19 outbreak. Future research studying emotions should be conducted in a lab, if possible, to control for extraneous environmental factors.

## Conclusion

This dissertation argues that emotion-regulation strategies are culturally dependent because meaning-making of our symbolic world comes from interactions. From this socialization framework, it can be inferred that emotion-regulation messages are created, used, and transmitted, allowing for the differential promotion of strategies by cultural socialization. However, research to date has made blanket statements about the benefits of reappraisal or mindfulness for all, without considering cultural values that may distinguish between the two regulation strategies.

This dissertation provides preliminary evidence for the cultural dependence of emotion-regulation strategies. Key takeaways include the following: (1) Members of the Chinese culture group exhibited greater mindfulness than Americans, and Americans, via the value placed on HAP affect, indicated a preference for reappraisal. (2) In studying emotion regulation, not only the valence of an emotion-eliciting stimulus should be assessed but also the intensity, such that there is a need for regulation that motivates individuals to use emotion regulation. (3) Measures of mindfulness effectiveness must assess how accepting people are of both positively valenced and negatively valenced emotions. (4) Though message congruency hypotheses were not fully supported, the results of the study point to how emotional intelligence may be an important construct in studying the utilization of strategies that are consistent or inconsistent with an individual's preferences.

This dissertation adds to the literature on emotion-regulation strategies by introducing the role cultural socialization has on the use of different strategies and creating space in the field of communication for emotion-regulation research. This area of research can provide unique insights into various communication contexts by answering research questions such as: (1) Does

congruent emotion-regulation messaging and emotional intelligence impact the effectiveness of care by healthcare providers? (2) What is the role of cultural socialization and emotion regulation in addressing intercultural conflict between outgroup members who value positive and negative emotions differently? (3) Is the cultural socialization for different emotion-regulation strategies reflected in the analysis of group-level emotions, and if so, what are the cognitive and behavioral consequences? (4) How do media, as a channel for cultural socialization, encourage or reflect the use of different emotion-regulation strategies (e.g., the exploration of mindfulness in this study being inspired by the *Star Wars* films)?

# Appendix A IRB Consent Form and Debrief for Pilot Studies

**Institutional Review Board** IRBNet Package: 1230575-2

CONSENT TO PARTICIPATE

**Project Title**
Emotions and Communication

**Purpose of the Study**
This research is being conducted by **Savreen Hundal** at the University of Maryland, College Park. We are inviting you to participate in this research project because you are at least 18 years old and an American student at the University of Maryland.

The purpose of this research project is to understand attitudes and values people hold regarding emotions, social interactions, and culture.

**Procedures**
For this study you will complete several questionnaires online pertaining to emotion and communication. Some of the questions may require you to respond to a short a graphic bullying video clip, a reading passage, or images.

Sample questions:

· I was preoccupied with the future or past.
0-Not at All 3- Somewhat 6- Very Much

· When I was faced with a stressful situation, I made myself think about it in a way that helped me stay calm.
1- Strongly Disagree 4- Neutral 7- Strongly Agree

· Using the scale below, how would you describe your feelings?
1- Sad 3- Neutral 5- Happy

· I find myself listening to someone with one ear, doing something else at the same time.
1-Almost Always 6-Almost Never

You will also be asked to provide your SONA ID so you can receive extra credit for your Communication courses. You will receive extra credit in accordance to the instructor' policies for the class you choose to assign the extra credit to. The study will take about 30 minutes to complete.

**Potential Risk and Discomforts**
There are no more than minimal risk associated with this study.
For the study you may watch a graphic bullying video clip and it is possible you may feel distress after watching the video clip. Please keep in mind you may withdraw from the study at any time. And more information about the

| | |
|---|---|
| | video clip will be provided during the debrief along with resources, both on and off campus, that are relevant to bullying. |
| **Potential Benefits** | There are no direct benefits to participants. We hope that, in the future, other people might benefit from this study through improved understanding of emotions and communication. |
| **Confidentiality** | Any potential loss of confidentiality will be minimized by storing data in a password protected computer in a limited access space and using a secure lab email with limited access to only researchers. Participants' individuating information will be separated and accordingly not linked to their responses in anyway. Only approved researchers will have access to the data you provide.<br><br>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law. |
| **Medical Treatment** | The University of Maryland does not provide any medical, hospitalization or other insurance for participants in this research study, nor will the University of Maryland provide any medical treatment or compensation for any injury sustained as a result of participation in this research study, except as required by law. |
| **Compensation** | You will receive extra credit in accordance to the instructor' policies for the class you choose to assign the extra credit to.<br><br>[Chinese IRB included different compensation as follows]: You'll get a chance to enter a raffle to win a $10 gift card. 1 in 10 participants wins a gift card. |
| **Right to Withdraw and Questions** | Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or loose any benefits to which you otherwise qualify. If you are an employee or student, your employment status or academic standing at UMD will not be affected by your participation or non-participation in this study.<br><br>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:<br><br>**Savreen Hundal**<br>**Department of Communication**<br>**University of Maryland**<br>**2100 Skinner Building** |

| | |
|---|---|
| | **College Park, MD 20742-7635**<br>**savreen@umd.edu** |
| **Participant Rights** | If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:<br><br>**University of Maryland College Park**<br>**Institutional Review Board Office**<br>**1204 Marie Mount Hall**<br>**College Park, Maryland, 20742**<br>**E-mail: irb@umd.edu**<br>**Telephone: 301-405-0678** |
| **Statement of Consent** | This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.<br>By clicking on the button below you indicate that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. If you want a copy of this consent form, feel free to email the principal investigator of this study. You can ask us for a copy of this consent form for your records.<br><br>If you agree to participate, click on the button below. |

DEBRIEF

Thank you for participating in our study. Your time has been invaluable to our research endeavors.

This online study was a pilot study testing the reliability and validity of various measures and stimulus for two culture groups, American and Chinese. Your responses will inform researchers of any changes that need to be made for measures or stimulus before being implemented in an experiment.

If you have any questions or concerns or are interested in the findings once all data has been collected, please contact the principal investigator, Savreen Hundal at savreen@umd.edu or the Cognition, Culture, & Communication Lab at cognition.culture.communication@gmail.com.

# Appendix B Demographic Questionnaire

1. What was your sex at birth?
    - Male
    - Female
    - Other _____
    - I prefer not to answer
2. What is your age, in years? _____
3. Do you consider yourself to be:
    - Heterosexual
    - Bisexual
    - Lesbian/Gay
    - Prefer not to disclose
    - Other. Please specify _____
4. Are you currently in a committed romantic relationship (i.e., exclusively dating, engaged, or married)?
    - Yes
    - No
    - Unsure
    - Prefer not to disclose
5. What is your current location of residence (i.e., city, country)?
   City: _____
   Country: _____
6. How long have you resided in your current location (i.e., city, country)?
   Please specify in **the number of years**_____
7. What is your household's annual income?
    - Less than $10, 000
    - $10,000-$30,000
    - $30,001-$50,000
    - $50,001-$70,000
    - $70,001-$90,000
    - $90,001-$110,000
    - More than $110,000
    - I prefer not to answer
8. What is your total household annual income?
   _____Dollars (U.S. $)
9. What is your highest level of educational attainment?
    - Some high school
    - High school
    - Some college
    - Vocational degree
    - Associate's degree
    - Bachelor's degree
    - Graduate/Professional degree
    - I prefer not to answer
10. Are you of Hispanic, Latino/a, or Spanish origin?

- No
- Yes. Please specify your Hispanic, Latino/a or Spanish origin _____

11. With which racial or ethnic group do you most identify?
    - African American
    - Asian/Pacific Islanders
    - Caucasian
    - Latino or Hispanic
    - Native American
    - Alaskan Native
    - Native Hawaiian or Other Pacific Islander
    - Multiracial: _____
    - Other _____
    - I prefer not to answer
12. What is your nationality (i.e., which country's citizenship do you currently have)?
    - Chinese
    - U.S. American
    - Other. Please specify _____
13. Were you born as a U.S. citizen?
    - Yes
    - No
14. What country was your mother born in?
    - China
    - America
    - Other: _____
    - I do not know
    - I prefer not to disclose
15. What country was your father born in?
    - China
    - America
    - Other: _____
    - I do not know
    - I prefer not to disclose
16. What country was you mother's mother (grandmother) born in?
    - China
    - America
    - Other: _____
    - I do not know
    - I prefer not to disclose
17. What country was you mother's father (grandfather) born in?
    - China
    - America
    - Other: _____
    - I do not know
    - I prefer not to disclose
18. What country was you father's mother (grandmother) born in?

- China
- America
- Other: _____
- I do not know
- I prefer not to disclose

19. What country was you father's father (grandfather) born in?
    - China
    - America
    - Other: _____
    - I do not know
    - I prefer not to disclose
20. Employment status: Are you currently _____? (Choose all that apply)
    - Employed not for wages
    - Employed for wages
    - Self-employed
    - Employed part-time
    - Out of work and looking for work
    - Out of work but not currently looking for work
    - A homemaker
    - A student
    - In the military
    - Retired
    - Unable to work
    - Prefer not to disclose
    - Other. Please specify_____

# Appendix C Emotion-Regulation Instructional Messages

Instructions tested in Pilot Study 1:
[REAPPRAISAL INSTRUCTIONS]
On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to change what you are thinking, by recognizing that there is no reason to feel anxious. Realize that the situation does not present a threat to you and you can simply alter your thinking. Regardless of your past experiences or how distressed you feel, it is not you in the video, and therefore have no negative consequences to be concerned with. For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, click the next button to watch the video. While watching the video practice handling your feelings in the manner suggested.
[MINDFULNESS INSTRUCTIONS]
On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to experience your feelings fully and do not try to control or change them in any way. Let your feelings run their natural course and allow yourself to stay with your emotions, as fully as possible, without trying to control your feelings. Become fully aware of your thoughts and sensations in the present moment as you watch the video. For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, click the next button to watch the video. While watching the video practice handling your feelings in the manner suggested.
[CONTROL INSTRUCTIONS]
On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to watch the full video that you will see on the next page. It is necessary to watch the full video until the duration of one minute and nine seconds ends. Only once the video of one minute and nine seconds has ended can you continue with the study. To move on to the next page, please click the next tab located on the bottom of the webpage. For now, please take a minute break before watching the video. When you feel a minute has expired, click the next button to watch the video.

**Instructions Retained for the Final Study:**
[REAPPRAISAL INSTRUCTIONS]
On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to change what you are thinking, by recognizing that there is no reason to feel anxious. Realize that the situation does not present a threat to you, and you can simply alter your thinking.
For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, answer the questions below.
[MINDFULNESS INSTRUTIONS]
On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort.

Please try to experience your feelings fully and do not try to control or change them in any way. Let your feelings run their natural course and allow yourself to stay with your emotions, as fully as possible, without trying to control your feelings.
For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, answer the questions below.

# Appendix D Pilot Study 1 Interview Guide

[Pilot Study 1 Part 3 is a two-part interview. In the first part, participants will answer questions to a Stop Bullying film clip they will be show; the same clip from Pilot Study 2. Following the film clip, participants will be asked a series of questions, organized into five categories: emotions, themes, identity, cinematic effect, and clearing house question. In the second part, participants will read a series of passages and will answer questions regarding those passages. The interview will be conversational and informal in style.]

[Part 1]
[Show Stop Bullying film clip]

1) Emotions
   a) How did the video make you feel?
   b) What emotions did you feel?
   c) What about the video made you feel that way?
   d) What would you say was the predominate emotion?

2) Theme
   a) Could you relate to the film?
   b) What do you think the theme(s) of the film were?
      i) How familiar were the themes depicted in the film?
      ii) Have you seen these themes before?
         (1) If the film is different from what you are used to, how different is this film's approach to the theme?
         (2) How would you envision the act of bullying?
   c) What do you think the purpose of this film was?

3) Identity
   a) Can you identify in some way with this film?
      i) If so, in which ways?
   b) Do you see yourself in this situation?
   c) Could you empathize with the individual in the film?
      i) If so, why?
      ii) If not, what was taking way from that connection?
   d) How do you think fellow students at Maryland will react to this video?

4) Cinematic Effect
   a) Was it difficult to figure out what was going on?
      i) What makes it hard to understand?
      ii) Do the blurred faces, shaky camera, and angles of camera prevent you from engaging with the message… with the characters?
   b) How would you make this video better?
   c) Where do you think this video takes place?
      i) Do you think such a video could be captured in the U.S.? … at UMD?

Clearing House Question

Thank you so much for your help and feedback on this video. So, I want to backtrack a little and tell you what the video is about and why I am asking you these questions. [Explain the purpose of interview to interviewee.]

Now understanding the purpose of this interview, is there anything you else you think is important that I should know or consider regarding this video.

[Part 2]

[Participants will be given the emotion regulation strategy instructions to read one at a time. Which passage of instructions is given first will be randomly determined. After each passage the same set of questions will be asked.]

Thank you for help with the video clip! For the second part of the interview I will be having you read three passages and then be asking you questions about them. So, to begin, please read the following passage. Take your time and try to understand what the passage is about.

[Reappraisal Instructions:]
*On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to* ***change what you are thinking****, by recognizing that there is no reason to feel anxious. Realize that the situation does not present a threat to you and* ***you can simply alter your thinking****. Regardless of your past experiences or how distressed you feel, it is not you in the video, and therefore have no negative consequences to be concerned with. For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, click the next button to watch the video. While watching the video practice handling your feelings in the manner suggested.*

[Mindfulness Instructions:]
*On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to* ***experience your feelings fully*** *and do not try to control or change them in any way. Let your feelings run their natural course and allow yourself to stay with your emotions, as fully as possible,* ***without trying to control your feelings****. Become fully aware of your thoughts and sensations in the present moment as you watch the video. For now, please take a minute and think about what it means to handle your feelings in the manner suggested. When you feel a minute has expired, click the next button to watch the video. While watching the video practice handling your feelings in the manner suggested.*
[Control Group Instructions- NO INSTRUCTIONS:]
*On the next page you will be asked to watch a clip from a distressing Public Service Announcement about a horrifying realistic situation. It is quite normal to feel discomfort. Please try to watch the full video that you will see on the next page. It is necessary to watch the full video until the duration of one minutes and nine seconds ends. Only once the video of one minute and nine seconds has ended can you continue with the study. To move on to the next page, please*

*click the next tab located on the bottom of the webpage. For now, please take a minute break before watching the video. When you feel a minute has expired, click the next button to watch the video.*

[Set of questions that will be asked after each passage has been read by the participant:]

1) What do you think the passage is about?
    a) Can you summarize in your own words what you think the passage was about?
2) What do you think it is asking you to do?
3) How familiar are you with what it's asking you do to?
    a) Do you think you can do what the passage is asking of you?
    b) Could you give me an example of how you would follow the passages instructions; a real-life scenario of how you would do what the passage is saying?
4) How easy was the passage to understand?
    a) What was confusing about the passage?
5) [After reading two or more passages] What do you think the difference between the passages is?

# Appendix E General Ethnicity Questionnaire

As a potential measure for cultural orientation, the General Ethnicity Questionnaire (GEQ) may be administered. The GEQ has a Chinese version (the questions are related to Chinese culture and are in Mandarin) and an American version (the questions are related to American culture and are in English; Tsai et al., 2000). The Chinese version is below. The American version includes the same items but the word "Chinese" is replaced with "American," and for questions 26-39 with the word "English."

Please use the following scale to indicate how much you agree with the following statements. Circle your response.

| 1 *Strongly Disagree* | 2 *Disagree* | 3 *Neutral* | 4 *Agree* | 5 *Strongly Agree* |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1. I was raised in a way that was Chinese. | 1 | 2 | 3 | 4 | 5 |
| 2. When I was growing up, I was exposed to Chinese culture. | 1 | 2 | 3 | 4 | 5 |
| 3. Now, I am exposed to Chinese culture. | 1 | 2 | 3 | 4 | 5 |
| 4. Compared to how much I criticize other cultures, I criticize Chinese culture less. | 1 | 2 | 3 | 4 | 5 |
| 5. I am embarrassed or ashamed of Chinese culture. | 1 | 2 | 3 | 4 | 5 |
| 6. I am proud of Chinese culture. | 1 | 2 | 3 | 4 | 5 |
| 7. Chinese culture has had a positive impact on my life. | 1 | 2 | 3 | 4 | 5 |
| 8. I believe that my children should read, write, and speak Chinese. | 1 | 2 | 3 | 4 | 5 |
| 9. I have a strong belief that my children should only have Chinese names. | 1 | 2 | 3 | 4 | 5 |
| 10. I go to places where people are Chinese or Chinese American. | 1 | 2 | 3 | 4 | 5 |
| 11. I am familiar with Chinese cultural practices and customs. | 1 | 2 | 3 | 4 | 5 |
| 12. I relate to my partner or spouse in a way that is Chinese. | 1 | 2 | 3 | 4 | 5 |
| 13. I admire people who are Chinese or Chinese American. | 1 | 2 | 3 | 4 | 5 |
| 14. I would prefer to live in a Chinese or Chinese American community. | 1 | 2 | 3 | 4 | 5 |
| 15. I listen to Chinese music. | 1 | 2 | 3 | 4 | 5 |
| 16. I engage Chinese dance. | 1 | 2 | 3 | 4 | 5 |
| 17. I engage in Chinese forms of recreation. | 1 | 2 | 3 | 4 | 5 |
| 18. I celebrate Chinese holidays. | 1 | 2 | 3 | 4 | 5 |
| 19. At home, I eat Chinese food. | 1 | 2 | 3 | 4 | 5 |
| 20. When going out to a restaurant, I usually prefer a place with Chinese food. | 1 | 2 | 3 | 4 | 5 |
| 21. When I was a child, a majority of my friends were Chinese or Chinese American | 1 | 2 | 3 | 4 | 5 |
| 22. Now, a majority of my friends are Chinese or Chinese American. | 1 | 2 | 3 | 4 | 5 |
| 23. I wish to be accepted by Chinese or Chinese American. | 1 | 2 | 3 | 4 | 5 |
| 24. A majority of the people I date are Chinese or Chinese American. | | | | | |
| 25. Overall, I am Chinese. | 1 | 2 | 3 | 4 | 5 |

Please use the following scale to answer the following questions. Circle your response.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| *Very Much* | *Much* | *Somewhat* | *A Little* | *Not At All* |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26. How much do you speak Chinese at home? | 1 | 2 | 3 | 4 | 5 | |
| 27. How much do you speak Chinese at school? | 1 | 2 | 3 | 4 | 5 | |
| 28. How much do you speak Chinese at work? | 1 | 2 | 3 | 4 | 5 | |
| 29. How much do you speak Chinese at prayer? | 1 | 2 | 3 | 4 | 5 | |
| 30. How much do you speak Chinese with friends? | 1 | 2 | 3 | 4 | 5 | |
| 31. How much do you view, read, or listen to Chinese on TV? | 1 | 2 | 3 | 4 | 5 | |
| 32. How much do you view, read, or listen to Chinese in film? | 1 | 2 | 3 | 4 | 5 | |
| 33. How much do you view, read, or listen to Chinese on the radio? | 1 | 2 | 3 | 4 | 5 | |
| 34. How much do you view, read, or listen to Chinese in literature? | 1 | 2 | 3 | 4 | 5 | |
| 35. How fluently do you speak Chinese? | 1 | 2 | 3 | 4 | 5 | |
| 36. How fluently do you read Chinese? | 1 | 2 | 3 | 4 | 5 | |
| 37. How fluently do you write Chinese? | 1 | 2 | 3 | 4 | 5 | |
| 38. How fluently do you understand Chinese? | 1 | 2 | 3 | 4 | 5 | |
| 39. Do you speak more than one language? (please circle) | Yes | | No | | | |
| If yes, what languages? | | | | | | |

# Appendix F Evidence for Reliability and Validity of the General Ethnicity Questionnaire

| Study Information | Reliability | Validity |
|---|---|---|
| Tsai et al. (2000)<br><br>Sample: Three Chinese American college groups: American-born Chinese ($N$ = 122); immigrant Chinese who arrived in the United States before or at age 12 ($N$ = 119), and immigrant Chinese who arrived in the United States after age 12 ($N$ = 112). | Cronbach's alpha for both scales were high (α = .92 for the GEQ-Chinese version and α = .92 for the GEQ-American version)<br><br>Approximately one month after the initial test date ($M$ = 34.85 days [$SD$ = 8.15], range = 16-32 days), test-retest data were collected for 60 of the participants. Test-retest reliability was .62 ($SD$ = .22) for the GEQC and .57 ($SD$ = .16) for the GEQA. | Correlations between average cultural orientation and standard indices of acculturation were calculated: average scores on the GEQC and GEQA were correlated with age of arrival ($r_{GEQC}$ = .56, $p$ < .001; $r_{GEQA}$ = –.63, $p$ < .001), generational status ($r_{GEQC}$ = –.50, $p$ < .001; $r_{GEQA}$ = .58, $p$ < .001), and length of residence in the United States ($r_{GEQC}$ = –.60, $p$ < .001; $r_{GEQA}$ = .64, $p$ < .001).<br><br>The Chinese American groups varied significantly on the following cultural domains: Chinese language use and proficiency, $F$(2, 352) = 211.01, $p$ < .0001; affiliation with Chinese people, $F$(2, 352) = 12.71, $p$ < .001; participation in Chinese activities, $F$(2, 352) = 47.32, $p$ < .001; and exposure to Chinese culture, $F$(2, 352) = 9.45, $p$ < .001. |

# Appendix G Trait and State Mindful Attention Awareness Scale

The 6-items from the Shortened Trait Mindful Attention Awareness Scale (MAAS Trait; Black et al., 2012; Brown & Ryan, 2003; Carlson & Brown, 2005) were administered on a 6-point scale with 1 (*Almost Always*) to 7 (*Almost Never*).

1. (Item 7) It seems I am "running on automatic" without much awareness of what I'm doing.
2. (Item 8) I rush through activities without being really attentive to them.
3. (Item 9) I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
4. (Item 10) I do jobs or tasks automatically, without being aware of what I'm doing.
5. (Item 13) I find myself preoccupied with the future or the past.
6. (Item 14) I find myself doing things without paying attention.

State Mindful Attention Awareness Scale (MAAS State) from Brown and Ryan (2003)

Instructions: Using the 1-7 scale shown, please indicate to what degree were you having each experience described below when you were paged. Please answer according to what really reflected your experience rather than what you think your experience should have been.

*Not at all* to (7) *Very Much*

1. I was finding it difficult to stay focused on what was happening.
2. I was watching the video without paying attention.
3. I was preoccupied with the future or the past.
4. I was watching the video automatically, without being aware of what I was doing.
5. I was rushing through the video without being really attentive to it.

# Appendix H Reliability and Validity Evidence for the Mindful Attention Awareness Scale

| Study Information | Reliability | Validity |
|---|---|---|
| Brown and Ryan (2003)<br><br>Sample: Validity tested (*N* = 327); Reliability tested (*N* = 60)<br><br>Context: Development of the Mindful Attention Awareness Scale | ICC = .81 ($p <$ .0001).<br><br>Test–retest score agreement: between Time 1 (3.78) and Time 2 (3.77) mean scale scores were not significantly different, $t(59) = .11$, *ns*.<br><br>Cronbach's α = .82 - .84 | A CFA of the single-factor model and the sample covariance matrix was satisfactory, $\chi^2$ (90, *N* = 327) = 189.57; GFI = .92, CFI = .91; IFI = .91, PCFI = .78, RMSEA = .058. |
| Baer et al. (2006)<br><br>Sample:<br>*N* = 613<br><br>Context: The purpose was to examine whether the available mindfulness questionnaires are internally consistent and correlated with MAAS. | | MAAS scores significantly correlated with other psychometrically sound measures of mindfulness: with the Freiburg Mindfulness Inventory $r = .31$, $p < .01$; with the Kentucky Inventory of Mindfulness Skills $r = .51$, $p < .01$; with the Cognitive Affective Mindfulness Scale $r = .51$, $p < .01$; with the Mindfulness Questionnaire $r = .38$; $p < .01$. |
| Black et al. (2012)<br><br>Sample: Adolescents from Chengdu, China (*N* = 5,287) ages ranged from 14 to 20 years (M = 16.2, SD = 0.7)<br><br>Context: Evaluate the psychometric properties of the MAAS among Chinese adolescents | Cronbach's α = .89–.93 | EFA model included the 15-item MAAS, 8-item Self-Control Scale, and 6-item Perceived Social Self-Efficacy. Promax (oblique) rotated loadings from the three-factor model indicated that latent factors loaded appropriately on their respective indicators, and there were no cross-loadings ≥ .30, suggesting discriminant validity. The 15-item convergent factor loadings of the MAAS ranged from .49 to .75. Of the 15-items, six items were extracted to create the shortened MAAS. |

# Appendix I Trait and State Emotion Regulation Questionnaire

A potential measure for trait reappraisal is the 6-item Emotion Regulation Questionnaire (ERQ Trait; Gross & John, 2003).

1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

1. I control my emotions by changing the way I think about the situation I'm in.
2. When I want to feel less negative emotion, I change the way I'm thinking about the situation.
3. When I want to feel more positive emotion, I change the way I'm thinking about the situation.
4. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.
5. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.
6. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.

Revised trait measure of reappraisal (ERQ Trait) such that the items measure a more immediate experience- ERQ State.

1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale.

1. I controlled my emotions by changing the way I thought about the situation.
2. When I wanted to feel less negative emotion, I changed the way I was thinking about the situation.
3. When I wanted to feel more positive emotion, I changed the way I was thinking about the situation.
4. When I wanted to feel more positive emotion (such as joy or amusement), I changed what I was thinking about.
5. When I wanted to feel less negative emotion (such as sadness or anger), I changed what I'm thinking about.
6. When I was faced with a stressful situation, I made myself think about it in a way that helped me stay calm.

# Appendix J Reliability and Validity Evidence for the Emotion Regulation Questionnaire

| Study Information | Reliability | Validity |
|---|---|---|
| Gross and John (2003)<br><br>Sample: Four samples of undergraduate college students (*N* = 791; 336; 240; 116)<br><br>Context: Developing a scale that measures individual differences in the use of reappraisal | Cronbach's α = .75 - .80 across the four samples<br><br>Test–retest reliability across 3 months was .69 | Convergent and discriminant relations between reappraisal and theoretical nomological net. Convergent validity between reappraisal and the following constructs: reinterpretation (β = .43, $p < .05$); repair (β = .36, $p < .05$); negative mood regulation (β = .30, $p < .05$). Discriminant validity between reappraisal and the following constructs: neuroticism (β = -.20, $p < .05$); extraversion (β = .11, $p < .05$); openness (β = .15, $p < .05$); agreeableness (β = .14, $p < .05$); conscientious (β = .13, $p < .05$). |
| Soto et al. (2011)<br><br>Sample Size: European American (EA) *N* = 71 Hong Kong Chinese (HKC) *N* = 100 | EA Cronbach's α = .87<br>HKC Cronbach's α = .82 | [The measure has been translated to Chinese and the translated version can be found at https://spl.stanford.edu/resources; however, the validity statistic cannot be found.] |

# Appendix K Affect Valuation Index Measuring: Preference for High Arousal Positive States and Low Arousal Positive States

The six-item on a scale from 1 (*very slightly or not at all*) to 5 (*extremely or all of the time*) is presented below (Tsai et al., 2006).

You would IDEALLY like to feel excited.
You would IDEALLY like to feel enthusiastic.
You would IDEALLY like to feel elated.
You would IDEALLY like to feel calm.
You would IDEALLY like to feel peaceful.
You would IDEALLY like to feel relaxed.

# Appendix L Reliability and Validity Evidence for the Affect Valuation Index

| Study Information | Reliability | Validity |
|---|---|---|
| Tsai, Miao, et al. (2007)<br><br>Sample: European American *N* = 225; Asian American *N* = 198; Hong Kong Chinese *N* = 145<br><br>Context: Conducted an exploratory factor analysis on the raw scores of the AVI items. | Items related to ideal HAP:<br>European American Cronbach's α = .71<br>Asian American Cronbach's α = .70<br>Hong Kong Chinese Cronbach's α = .60<br><br>Items related to ideal LAP:<br>American Cronbach's α = .69<br>Asian American Cronbach's α = .75<br>Hong Kong Chinese Cronbach's α = 53 | Factor invariance fit indices for HAP:<br>RMSEA = .04; GFI = .99; IFI = 1.00; CFI = 1.00<br><br>Factor invariance fit indices for LAP:<br>RMSEA = .00; GFI = 1.00; IFI = 1.00; CFI = 1.00 |
| Tran et al. (2017)<br><br>Sample: Taiwanese *N* = 157; White American *N* = 220<br><br>Context: Explore the association between ideal affect and psychological functioning | HAP (i.e., enthusiastic, excited, elated, strong, euphoric):<br>Cronbach's $\alpha_{TW}$ = .79-.84; Cronbach's $\alpha_{WA}$ = .66-.75<br><br>LAP (i.e., rested, relaxed, peaceful): Cronbach's $\alpha_{TW}$ = .78-.83; Cronbach's $\alpha_{WA}$ = .66-.76 | Multiple-group CFA- factor structures of the AVI scale is invariant across the Taiwanese and White American samples:<br><br>HAP: $\Delta\chi^2$ = 4.60-9.98, *p* = .08-.47, $\Delta df$ = 5, CFI = .96, RMSEA = .07-.09<br><br>LAP: $\Delta\chi^2$ = 2.08-6.71, *p* = .08-.56, $\Delta df$= 3, CFI = .90-1.00, RMSEA = .00-.08 |

# Appendix M Circumplex Scale of Interpersonal Values: Preference to Influence and Preference to Adjustment Scale

Influence and adjustment goals were identified from the Circumplex Scale of Interpersonal Values (Locke, 2000; Morling et al., 2002; Tsai, Miao, et al., 2007; Weisz et al., 1984). Of the 64-items, the researchers conducted an exploratory factory analysis determining influence and adjustment factors (Tsai et al., 2007). Four items loaded onto influence and five items loaded onto adjustment. Items of influence include both states of influence, asserting the self and changing others. Items of adjustment include both states of adjustment, suppressing the self and conforming to others. However, the researchers did not provide any additional information (i.e. the kind of exploratory factory analysis conducted or amount of variance explained).

Instructions: For each item below, answer the following question: When I am in interpersonal situations (such as with close friends, with strangers, at work, at social gatherings, and so on), in general how important is it to me that I act or appear or am treated this way? Use the following rating scale:

0 (*not important*), 1 (*mildly important*), 2 (*moderately important*), 3 (*very important*), 4 (*extremely important*)

**Influence**

*Asserting the self*

1. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I appear confident.
2. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I am unique.

C*hanging others*

3. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I have an impact on them.
4. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that they listen to what I have to say.

**Adjustment**

*Suppressing the self*

1. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I keep my thoughts or feelings to myself.
2. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I do not reveal what I am really like.

*Conforming to others*

3. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I go along with what they want.
4. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that I do what they want me to do.
5. When I am with him, her, or them, it is [0, 1, 2, 3, 4] that they do not see me as getting in their way.

# Appendix N Reliability and Validity Evidence for Circumplex Scale of Interpersonal Values: Influence and Adjustment Items

| Study Information | Reliability | Validity |
|---|---|---|
| Tsai, Miao, et al. (2007)<br><br>Sample: American *N* = 225; Asian American *N* = 198; Hong Kong Chinese *N* = 145<br>Context: Conducted an exploratory factor analysis on the raw scores of all 64 items of the Circumplex Scale of Interpersonal Values to identify the items related to influence and adjustment. | Influence:<br>European American Cronbach's α = .63<br>Asian American Cronbach's α = .65<br>Hong Kong Chinese Cronbach's α = .49<br><br>Adjustment:<br>Cronbach's α = .64<br>Asian American Cronbach's α = .69<br>Hong Kong Chinese Cronbach's α = .60 | Factor invariance fit indices for Influence goal: RMSEA = .07; GFI = .95; IFI = .95; CFI = .95<br><br>Factor invariance fit indices for Adjustment goal: RMSEA = .07; GFI = .99; IFI = .98; CFI = .98 |

# Appendix O Positive Affect and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer. Indicate to what extent during the video you experienced the feeling or emotion.

Use the following scale to record your answers: (1) *very slightly* to (9) *extremely*.

Sad

Aroused

Power

Surprise

Appendix P Reliability and Validity for Positive Affect Negative Affect Schedule

| Study Information | Reliability | Validity |
|---|---|---|
| Crawford & Henry (2004)<br><br>Sample: European American *N* = 1,003<br>Context: Conducted a confirmatory factor analysis | PA:.86-.90<br>European American<br>Cronbach's α = .89<br><br>Items related to ideal NA:<br>European American<br>Cronbach's α = .85 | RCFI = .94 falls; RMSEA = .058 SRMR = .052 |
| Liu et al. (2019)<br><br>Sample: Chinese *N* = 4136<br><br>Context: Explore the factor structure in Hong Kong Chinese sample | Cronbach's α = .81 | Nomological validity established: "PA was found to be positively associated with effort ($r = 0.42$, $p < 0.01$) and negatively associated with lack of concentration ($r = -0.19$, $p < 0.01$) and worry ($r = -0.40$, $p = 0.05$). NA was negatively associated with effort ($r = -0.21$, $p < 0.01$) and positively associated with lack of concentration ($r = 0.46$, $p < 0.01$) and worry ($r = 0.49$, $p < 0.01$)." (Liu et al., 2019, p. 8) |

# Appendix Q IRB Consent Form and Debrief

**Institutional Review Board**

CONSENT TO PARTICIPATE

| | |
|---|---|
| **Project Title** | *Emotions and Communication* |
| **Purpose of the Study** | *This research is being conducted by Savreen Hundal at the University of Maryland, College Park. We are inviting you to participate in this research project because you are at least 18 years old.*<br><br>*The purpose of this research project is to understand attitudes and values people hold regarding emotions, social interactions, and culture.* |
| **Procedures** | *For this study you will complete several questionnaires online pertaining to emotion and communication. Some of the questions may require you to respond to a short violent bullying video clip.*<br><br>*Sample questions:*<br>· *I was preoccupied with the future or past.*<br>*0-Not at All 3- Somewhat 6- Very Much*<br>· *When I was faced with a stressful situation, I made myself think about it in a way that helped me stay calm.*<br>*1- Strongly Disagree 4- Neutral 7- Strongly Agree*<br>· *Using the scale below, how would you describe your feelings?*<br>*1- Sad 3- Neutral 5- Happy*<br>· *I find myself listening to someone with one ear, doing something else at the same time.*<br>*1-Almost Always 6-Almost Never*<br><br>*You will also be asked to provide your email address after the survey is over so that your email can be entered into a raffle to win a gift card prize. After data collection is complete, all gift card prizes will be drawn. The study can take 30-60 minutes to complete.* |
| **Potential Risks and Discomforts** | *There are no more than minimal risk associated with this study.*<br><br>*For the study you will watch a violent bullying video clip and it is possible you may feel distress after watching the video clip. Please keep in mind you may withdraw from the study at any time. And more information about the video clip will be provided during the* |

| | |
|---|---|
| | *debrief along with resources, both on and off campus, that are relevant to bullying.* |
| **Potential Benefits** | *There are no direct benefits to you. We hope that, in the future, other people might benefit from this study through improved understanding of emotions and communication.* |
| **Confidentiality** | *Any potential loss of confidentiality will be minimized by storing data in a password protected computer in a limited access space and using a secure lab email with limited access to only researchers. Your individuating information will be separated and accordingly not linked to your responses in anyway. Only approved researchers will have access to the data you provide.*<br><br>*If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.* |
| **Compensation** | *You will receive a $10 gift card to Starbucks upon completing the survey. This gift card will be presented to you digitally upon entering your email address at the end of the study. Compensation will be distributed after data collection has been completed.* |
| **Right to Withdraw and Questions** | *Your participation in this research is completely voluntary. You may choose not to take part at all or partly participate by skipping questions. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or loose any benefits to which you otherwise qualify. If you are an employee or student, your employment status or academic standing at UMD will not be affected by your participation or non-participation in this study.*<br><br>*If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:*<br><br>**Savreen Hundal**<br>**Department of Communication**<br>**University of Maryland**<br>**2100 Skinner Building**<br>**College Park, MD 20742-7635**<br>**savreen@umd.edu** |
| **Participant Rights** | *If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:*<br><br>**University of Maryland College Park** |

| | | |
|---|---|---|
| | **Institutional Review Board Office**<br>**1204 Marie Mount Hall**<br>**College Park, Maryland, 20742**<br>**E-mail: irb@umd.edu**<br>**Telephone: 301-405-0678**<br><br>*This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.* | |
| **Statement of Consent** | *Sign below to indicate that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. If you want a copy of this consent form, you can print a copy of this Consent From for your records.*<br><br>*If you agree to participate, sign below.* | |
| | _____ | |

[DEBRIEF PROVIDED TO PARTICIPANTS]

Thank you for participating in our study. Your time has been invaluable to our research endeavors.

Now you are officially done, and I'd like to tell you a little bit more about the study. You were told that the purpose of this study was to investigate how people respond to violence. In actuality, we were interested in understanding how people from different cultures use mindfulness and reappraisal to regulate their emotions when presented with distressing messages like school bullying. We believe that the ability to regulate emotion is partly learned and thus shaped by culture. Accordingly, the American culture would more readily use reappraisal tactics that would be resourceful for a culture that values assertiveness, loose culture norms, and high positive affective states. In contrast, Asian culture like China would more readily use mindfulness tactics that would be resourceful for a culture that values adjustment, group harmony, tight culture norms, and low positive affective states. During the experiment you completed several surveys and watched a video during which you were instructed to use one of the of emotion-regulation strategies, mindfulness or reappraisal. Results will help us understand whether in fact there are cultural differences when it comes to regulating distressing emotions like violence between students. Lastly, the last page of debrief you saw on your monitor was a hoax to test whether emotion regulation is related to behavior such as donating money to a stop bullying campaign [only 2 out of entire sample of participants contributed about $1 and therefore the survey question regarding donations was invalid and removed from the study]. We apologize for the deception but asking for voluntary donations was in fact part of the study. We will not be collecting any funds as part of this lab towards the Stop Bullying cause. You will not be

contacted by anyone part of this lab for any types of funds. The video used in the study was created by the lab researchers and is not a real campaign for stopping bullying.

We apologize for not telling you the full purpose of the study at the beginning. To protect the integrity of this research, we could not fully divulge our hypotheses at the start of the experiment. I hope you can see that if participants knew exactly what we were interested in studying, they might change their answers a little bit, which would negatively affect the quality of our research conclusions.

As you know, your participation in this study is voluntary. If you so wish, you may withdraw at this point by emailing the Principal Investigator at savreen@umd.edu to have your data retracted from the research. Accordingly, your data will be destroyed immediately and will not be included in analysis. You will not be penalized if you choose to withdraw.

If you have any questions or concerns or are interested in the findings once all data has been collected, please contact the principal investigator, Savreen Hundal at savreen@umd.edu or the Cognition, Culture, & Communication Lab at cognition.culture.communication@gmail.com. If you have questions about your rights as a participant, you can e-mail the IRB using the contact info also provided on the consent form.

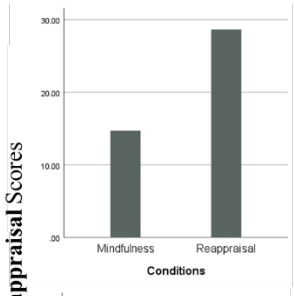
Finally, we ask that you don't talk about any details of the study with other students/faculty/staff/community members. If participants know the true purpose of the study ahead of time, it will skew our results, so please do not share any information about the study.

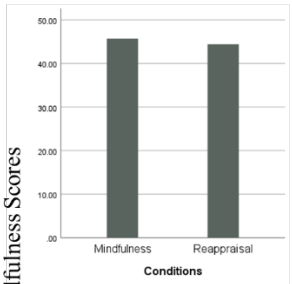
Thank you very much for your participation today. We hope you found it enjoyable.

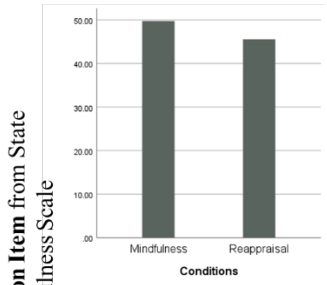
Have a great day!

# Appendix R Main Study Manipulation Check Results

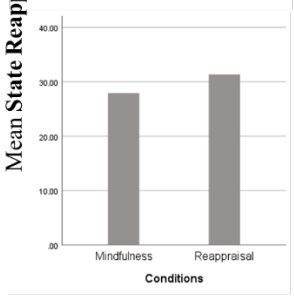
American Data:

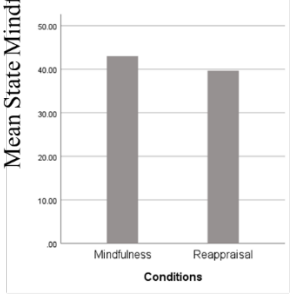


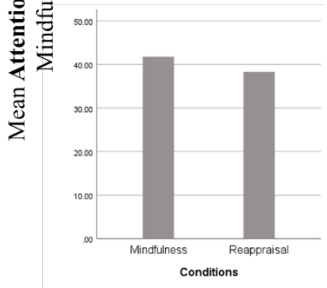




Chinese Data:



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# Footnotes

[1] The Stroop Test requires attention to be placed on novel information rather than on automatically processed information. For example, asking participants to say the color of the letter (color being "RED") rather than reading the word the letters create, "GREEN" (Stroop, 1935). The automatic process of reading has to be suppressed as the task instructs participants to pay attention to the color of the letters.

[2] In testing the interactions, I first mean centered the two variables involved in the interaction and then multiplied the mean corrected variables, such that their product term is the interaction variable. To test the linear-by-linear interaction in AMOS, all three variables (i.e., the two variables and their product, the interaction term) are entered into the model with direct paths to the dependent variable they are predicting. The interaction variable is allowed to covary with the variables from which it was created.

[3] When deciding between orthogonal and oblique rotation, Tabachnick and Fiddell (2007) recommend first completing an oblique rotation to determine if the factor correlations are around .32 or above, which suggests a 10% or more overlap in variance among the factors. Factor correlations of .32 and above thus warrant an oblique rotation. If the factor correlations are below .32 then an orthogonal rotation can be used. If the data yield a one factor solution it is irrelevant which rotation method is used. Russell (2002) recommended that investigators use Promax since the:

> "procedure initially conducts a Varimax rotation and then relaxes the constraint that the factors are uncorrelated with one another to improve the fit to simple structure. If it is the case that factors that are uncorrelated (or nearly so) fit the data well, then this rotation will result in factors that are close to orthogonal to one another" (p. 1635).

Lastly, there is no theoretical reason to believe that the items for scales used in this study measuring attitudes, beliefs, and behaviors would yield factors that are uncorrelated.

[4] The topic of bullying for the stimulus video was selected due to the prevalence of the bullying crisis in both the United States and China. In the United States 22% of students report incidences of bullying during their primary education years, and this is similar in China (20% of the students report incidences of school bullying). The bullying topic is therefore salient in both cultures providing participants with familiarity on the topic (Ba et al., 2019; National Center for Education Statistics, 2021).