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# Investigating the Interaction between Memory Recall Content and Savoring Interventions on Openness

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INVESTIGATING THE INTERACTION BETWEEN MEMORY RECALL CONTENT AND  
SAVORING INTERVENTIONS ON OPENNESS

by

CAROLINE V. YOUNG

(Under the Direction of Jeff Klibert)

ABSTRACT

Openness is generally characterized by a stark curiosity for novel experiences and the ability to flexibly shift one's attention and thinking processes to appreciate differing perspectives. Research suggests openness is a personal resource in terms of helping individuals effectively regulate emotions, cope with stress, and socialize with diverse populations. However, it is unknown what interventions specifically lead to an increase in openness. Positive affect appears to be associated with openness, yet the mechanisms by which positive affect promotes openness remain unclear. It is possible savoring, the ability to maintain and extend positive affect, may play an important role in clarifying the relationship between positive affect and openness. Thus, the primary purpose of the current study was to experimentally determine whether a savoring intervention could boost positive affect scores to increase openness. One hundred and five undergraduate students participated in the study, and valid data were collected from 93 participants. Participants were randomly assigned to a memory task (positive affect vs. neutral affect) and an intervention task (savoring vs. control). A 2 (memory task) x 2 (intervention) Factorial ANOVA was analyzed. Results reveal a non-significant effect for memory task and intervention task on openness scores. Results also highlight a non-significant interaction effect for openness scores. These findings are inconsistent with my hypotheses. Moreover, these results call in to question the ability of different positive psychological theories to increase openness scores.

**KEYWORDS:** Openness, Positive affect, Savoring, Positive memory recall

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## CHAPTER 1: INTRODUCTION

Within the personality psychology literature, the concept of openness is abstractly defined. However, there are a few common themes consistent within available definitions of openness. Distinguishing characteristics of openness include a passion for adventure and new experiences as well as cognitive and emotional flexibility (Lambie, 2014). Specifically, openness is defined based on associated characteristics with openness to experience – a construct which emphasizes appreciation for aesthetically-pleasing objects (i.e., art, music) and curiosity to explore novelty and challenging experiences (Seong-Hee, Yukyoum, & Won-Jae, 2015). The nature of openness is also characterized by cognitive flexibility components associated with open-mindedness – an individual’s ability to flexibly and respectfully shift his or her perspective when discussing opposing viewpoints with others in an effort to better appreciate differences and broaden his or her worldview (Lambie, 2014). Although these definitions and characteristics exist to describe openness, research demonstrates a lack of inclusiveness regarding the nature of openness in a larger, multicultural context (Ang, van Dyne, & Koh, 2006; Williams, Rau, Cribbet, & Gunn, 2009). Taken together, the lack of a unified definition of openness necessitates efforts to measure openness through multiple assessment instruments.

Research suggests openness promotes health and well-being among a wide range of individuals (Albuquerque, Lima, Matos, & Figueiredo, 2013; Rasmussen & Bernsten, 2010). Individuals who are more open tend to effectively manage their emotions and experience minimal worry (Ivcevic & Brackett, 2015; Spink, Green, & Jorgensen, 2014; Williams et al., 2009). Higher openness promotes emotional regulation by helping individuals understand consequences associated with emotionally reactive responses and learn appropriate techniques to manage emotional experiences (Ivcevic & Brackett, 2015; Spink et al., 2014;). In turn, these

strategies increase emotional intelligence and reduce emotional reactivity (Ivcevic & Brackett, 2015; Spink et al., 2014). Additionally, physiological research supports a link between openness and physical health, specifically concerning stress regulation (Williams et al., 2009). Individuals who are more open experience less stress and worry as a result of perceiving their environments as exciting and novel rather than threatening. Such perceptions may protect open individuals from experiencing chronic illness and/or provide strategies to effectively manage chronic illness symptoms (Spink et al., 2014; Williams et al., 2009). Given that high openness helps individuals find enjoyment and satisfaction in their environments, openness may provide benefits when adjusting to lifestyle transitions, such as moving, which may lead to an increase in subjective well-being (Bardi, Guerra, & Ramdeny, 2008). Overall, it appears higher openness promotes health by reducing stress and emotional reactivity and offering protective benefits against the development of chronic illnesses.

Openness is a key contributor to cultural intelligence (Ang et al., 2006; Li, Mobley, & Kelly, 2016). Specifically, higher openness enhances an individual's curiosity and motivation to learn and think about beliefs, norms, and values associated with different cultures (Ang et al., 2006). Increases in cultural intelligence make it easier for individuals to interact, connect, and empathize with individuals from different cultural backgrounds (Li et al., 2016). Given that higher openness is linked to greater cultural intelligence, open individuals may experience more meaningful social interactions with diverse populations by approaching social engagements from a place of appreciation rather than judgement.

**Demographic Status and Openness.** Reports of openness may vary by gender and socioeconomic status (Costa, Terracciano, & McCrae, 2001; Jonassaint et al., 2011; Sutin et al., 2013; Vianello et al., 2013). Research highlights mixed effects determining if openness varies by

men versus women (Costa et al., 2001). Jonassaint and colleagues (2011) demonstrate women generally experience higher openness than men. In contrast, Vianello and colleagues (2013) found men reported higher levels of openness when this trait was measured implicitly but not explicitly. In support of the latter findings, researchers suggest implicit measures are less likely to generate answers consistent with gender-appropriate behaviors in comparison to self-report measures (Vianello et al., 2013). However, significant differences can be observed between men and women who score high on dimensions of openness (Costa et al., 2001). Specifically, women who are high in openness are able to easily access and deeply experience emotions, while men who are high in openness tend to appreciate differing ideas and are driven to make decisions based on reason and intellect (Costa et al., 2001). Given these findings, it is important to consider gender in any evaluation of openness.

Additionally, socioeconomic status (SES) appears to influence reports of openness (Jonassaint et al., 2011; Sutin et al., 2013). Research suggests high-SES individuals experience greater levels of openness when compared to low-SES individuals due to access to resources, such as education and financial stability (Jonassaint et al., 2011). Individuals residing in urban areas also reported higher levels of openness when compared to residents from rural areas, which may be attributed to prolonged exposure to diverse populations (Sutin et al., 2013). Regarding SES, it appears high-SES individuals residing in urban areas may report experiencing higher levels of openness in comparison to low-SES individuals from rural areas. Again, SES and rural status are worth consideration when empirically examining openness.

**Increasing Openness.** Although research clearly delineates openness as a key personal attribute, few theories or models speculate how openness can be enhanced. However, the field of positive psychology encompasses a few affective-based models providing pathways by which an

individual's degree of openness can be increased, reinforced, and/or strengthened. Positive psychology emphasizes the uniqueness of an individual's experience to promote thriving and optimal self-fulfillment (Fredrickson, 2004). Positive affect, defined as an emotional state characterized by active engagement and pleasing emotions, such as joy and enthusiasm, appears to be key in helping individuals thrive (Watson, Clark, & Tellegen, 1988). Specifically, the broaden-and-build theory of positive emotions postulates the activation of positive emotions, such as joy and love, can facilitate positive development and psychological growth over time (Fredrickson, 2004). According to Fredrickson (2004), "the broaden-and-build theory describes the form of positive emotions in terms of broadened thought-action repertoires and describes their function in terms of building enduring personal resources" (p. 1639). One personal resource that may be strengthened by positive emotions is openness (Ivcevic & Brackett, 2015). However, the experience of positive emotions is not enough to initiate the development of personal resources, like openness. According to positive emotional regulation theorists, an individual's ability to extend positive affective states through emotional uplifting strategies is a required element in the generation and strengthening of positive resource development, including openness (Quoidbach, Mikolajczak, & Gross, 2015). The purpose of emotional uplifting strategies is to extend positive affective states by savoring positive experiences. To this end, the current study seeks to explore openness through a positive emotional regulation perspective.

### **Purpose**

Overall, the purpose of the current study was to examine causal pathways by which openness can be increased or strengthened. The current study investigated variation in openness scores through positive psychological theories. Specifically, the purpose of the current study was to experimentally examine the effects positive affect (generated through positive autobiographical memory recall) and the implementation of emotional uplifting interventions

have on different indices of openness. To this end, the current study aimed to answer the following questions:

1. Do self-reported levels of openness vary by different demographic variables (i.e., gender, SES, rural status)?
2. Does positive affect (generated through autobiographical memory recall) interact with emotional uplifting interventions to explain differences on self-reports of openness indices?

### **Significance**

In the personality literature, it appears openness is repeatedly measured using the same constructs for different cultures and demographics. When evaluating openness, it is imperative to examine demographic differences in order to obtain a more accurate understanding of how this personality trait is experienced and expressed across different cultures. Such findings may lead to the development of more culturally-sensitive, specifically gender-sensitive and rural-sensitive, theories of openness and how openness can be accessed by diverse individuals to promote health and well-being.

Additionally, increasing openness can be an important mechanism to enhance interpersonal effectiveness and cognitive functioning. Research consistently highlights openness as a personal attribute associated with positive psychological outcomes. Yet, few studies identify pathways that can increase or strengthen an individual's activation of openness traits. By identifying these pathways, clinicians may be able to help individuals broaden their perspective taking and social interaction skills with diverse populations under the pretense of appreciation rather than judgment. Overall, the current study has the potential to elucidate pathways by which people can facilitate greater access to openness-based resources.

## Definition of Terms

In the current study, the effect of an emotional uplifting regulation intervention on openness was explored through the context of two memory recall activities. The first activity was a positive memory recall task (i.e., remembering a personally meaningful accomplishment), whereas the second activity was a neutral memory recall task (i.e., thinking about a bland scenario). These tasks were developed to activate different levels of positive affective states. Participants were randomly assigned to either the positive or neutral memory recall task.

- 1. Positive Memory Recall:** Memory recall is defined as the ability to actively remember personal experiences (Rasmussen & Berntsen, 2010). Rasmussen and Berntsen (2010) suggest reflecting on positive autobiographical memories is linked to different positive mood states. Specifically, individuals who experience higher levels of positive mood are more likely to use autobiographical memories as rich resources to initiate positive events and experiences. Participants were randomly assigned to either a positive autobiographic memory recall exercise or a neutral autobiographical memory recall exercise. In the current study, memory recall activities served as an independent variable.
- 2. Positive Affect:** Positive affect refers to an emotional state characterized by high energy, complete concentration, and pleasurable engagement (Watson et al., 1988). Certain emotions associated with positive affect include enthusiasm, calmness, and joy (Watson et al., 1988). Research suggests positive affect produces benefits associated with success in multiple domains, including increased confidence and self-efficacy, meaningful interpersonal relationships, and cognitive flexibility (Lyubomirsky et al., 2005). In the current study, different levels of positive affect were expected to be produced from the different memory recall tasks employed.

- 3. Emotional Uplift:** Positive emotional regulation (i.e., emotional uplift) is defined as the process by which positive feelings are accessed, expressed, and maintained (Quoidbach et al., 2015). Given this, the current study implemented an emotional uplifting intervention having participants describe how their behavior in previous experiences was associated with six strength-based perspectives. Further evaluation of experiences in the context of this exercise was expected to help individuals savor and elongate positive affective states generated by memory recall tasks. Participants were randomly assigned to either the emotional uplift condition or a true control condition, where they sat quietly for 15 minutes. Emotional uplifting condition served as an independent variable in the current study.
- 4. Openness:** Within the literature, openness is characterized by a sense of curiosity and a willingness to appreciate different points of view. In the current study, three indices of openness were explored – general openness, openness to experience, and openness to diversity. General openness is characterized by a transparent and unrestricted attitude that helps individual accommodate personal beliefs to meet untraditional ideas or behaviors with receptivity (Lambie, 2014). Openness to experience refers to the motivation and curiosity to seek novel and challenging experiences (Ivcevic & Brackett, 2015). Openness to diversity refers to an ability to demonstrate cognitive flexibility by taking the perspective of another individual from a nonjudgmental standpoint in an attempt to view the world from an alternative angle (Schommer-Aikins & Easter, 2015). In the current study, these three indices of openness served as the dependent variables.

## CHAPTER 2: LITERATURE REVIEW

Evidence within the literature suggests positive emotions help individuals thrive and flourish, leading to improvements in their health and quality of life (Burns et al., 2007). Emotions are best described as transient experiences producing changes in an individual's pattern of thinking, behavior, and physiological responses (Fredrickson & Branigan, 2005). However, negative and positive emotions appear to serve different functions. From an evolutionary perspective, negative emotions activate specific action tendencies promoting survival by narrowing an individual's attention to his or her environment and facilitating quick behaviors (Fredrickson, 2004; Fredrickson & Branigan, 2005). Fear, for example, helps individuals escape or fight perceived threats by activating the fight-or-flight response (Fredrickson, 2004). However, research highlighting the function of positive emotions is still emerging.

According to the broaden-and-build theory, positive emotions are important in how people thrive. Specifically, positive emotions broaden individuals' patterns of thinking and behavior as a means to build important personal resources (Fredrickson, 2004; Fredrickson & Branigan, 2005). Interest, for example, is linked to personal growth by motivating individuals to explore and discover new experiences (Fredrickson, 2004). Essentially, positive emotions expand the scope of one's cognitive abilities (Fredrickson, 2004; Fredrickson & Branigan, 2005).

Broadening cognitive abilities through the generation and experience of positive emotions leads to the development of key personal resources. For instance, individuals who experience more frequent periods of positive emotions, such as joy, interest, contentment, and love, demonstrate more flexible thinking patterns (Fredrickson, 2004; Fredrickson & Branigan, 2005). Creativity and efficiency are also enhanced when individuals broaden their cognitive

abilities through the experience of positive emotions (Fredrickson, 2004). Positive emotions build a number of other personal resources, including mindfulness, physical health, and interpersonal connectedness (Fredrickson, 2004; Fredrickson & Branigan, 2005; Garland et al., 2010). Furthermore, a cultivation of positive emotions can facilitate the development of psychological resilience and effective coping strategies in response to adversity (Fredrickson, 2004; Fredrickson & Branigan, 2005; Garland et al., 2010).

There is even some evidence suggesting positive emotions are integral in the development of openness. By accessing a broader scope of cognition through the experience of positive emotions, individuals appear more appreciative of differences and become more motivated to consider alternative behavioral responses to novel situations (Fredrickson, 2004). In this way, positive emotions, like joy, broaden the scope of attention to increase awareness and to facilitate more open and inclusive views of the environment (Fredrickson, 2004; Fredrickson & Branigan, 2005). Given the literature to date, tasks stimulating positive emotions are likely to contribute to greater self-reports of personal resources, like openness.

**Autobiographical Recall.** Recalling positive events serves as an effective technique for activating positive affect. Quoidbach, Mikolajczak, and Gross (2015) contend mentally reliving a past positive life event can activate and enhance positive emotions experienced in present time. Research appears to support this position. In examining the influence of memory recall on mood and subjective well-being, Strack, Schwarz, and Gschneidinger (1985) found vividly reflecting on positive life experiences through a detailed writing task increases self-reports in mood and subjective well-being. Similarly, Bodenhausen, Kramer, and Süsser (1994) suggest individuals who direct their attention to a positive memory are likely to experience greater levels of happiness. Recent evidence for the impact of positive memory recall on increased mood is

apparent, as well. For instance, re-experiencing a positive life event by focusing on factual information, such as specific details, about how the situation occurred rather than why the situation occurred resulted in higher reports of positive affect (Nelis et al., 2015). Taken as a whole, engaging in positive memory recall tasks appears to be an effective means by which individuals can generate positive emotions. Therefore, a positive memory recall task was employed as a means to examine the impact of positive mood stimulation on levels of openness.

### **Positive Emotion Regulation**

Despite evidence for the link between positive affect and openness, emotion regulation theory emphasizes the role of upregulation strategies in strengthening this association. Following a process model, emotion regulation theory suggests cognitive enhancement of affect generated from a positive experience determines behavioral and physiological outcomes (Gross & John, 2003). Essentially, cognitive re-appraisal influences how individuals process, respond to, and experience an emotion-inducing event (Gross & John, 2003). However, researchers often fail to recognize the value of upregulating positive emotions through cognitive re-appraisal and instead overly focus on downregulating negative emotions as means to improve functioning (Quoidbach et al., 2015).

Using cognitive re-appraisal techniques to upregulate positive emotions is an essential step in achieving higher levels of well-being (Quoidbach et al., 2015). Specifically, regulating positive emotions through cognitive re-appraisal techniques involves attending to pleasurable situations, altering perceptions or external stimuli, and modifying responses to experience positive outcomes (Bryant & Veroff, 2007). One cognitive re-appraisal strategy thought to upregulate positive emotions is savoring. Hurley and Kwon (2013) define savoring as the ability to produce, extend, and amplify positive emotions associated with a positive experience. Tugade

and Fredrickson (2006) postulate positive emotions are extended or maintained through savoring because the process of savoring sharpens an individual's attentional focus to specific emotions, reinforces social bonds by sharing positive experiences with others, and facilitates a positive reflection on meaningful events. Moreover, positive emotions can be enhanced through a past, present, or future savoring orientation (Tugade & Fredrickson, 2006). For example, the birth of a child is an event most people savor at multiple levels. In this example, positive emotions can be extended through savoring when planning the child's arrival and thinking about positive life changes (future oriented); when sharing pictures and positive experiences of the newborn with significant others, friends, and family (present oriented); and reminiscing through memory exploration and scrapbooking (past oriented; Tugade & Fredrickson, 2006). Overall, savoring, or mindfully directing attention to a positive experience, is a pathway by which positive emotions resulting from pleasing experiences can be strengthened or maintained (Bryant & Veroff, 2007). However, research has yet to investigate whether savoring strategies can moderate the relationship between positive affect and the development of personal resources, such as openness.

A number of studies demonstrate the potential of savoring to moderate the effects of positive affect on personal resources, like openness. Quoidbach and colleagues (2010) propose that savoring indirectly promotes open ways of thinking and behaving, leading to an increased curiosity and acceptance of diversity. Consistent with this research, savoring is associated with other positive resources that promote personal well-being, such as coping, interpersonal connectedness, happiness, and life satisfaction (Bryant & Veroff, 2007; Hurley & Kwon, 2013; Jose et al., 2012; Quoidbach, Berry, Hansenne, & Mikolajczak, 2010; Tugade & Fredrickson, 2006).

A number of studies suggest savoring is instrumental in the development of important life resources. Savoring promotes social bonding by sharing positive experiences with others (Bryant & Veroff, 2007; Quoidbach et al., 2010). Referred to as capitalizing, this form of savoring occurs when individuals celebrate positive experiences with others, resulting in a shared experience of positive affect (Quoidbach et al., 2010). Savoring through capitalizing improves psychological well-being and interpersonal relationships (Quoidbach et al., 2010). Bryant and Veroff (2007) propose savoring positive experiences with significant people strengthens relationships and the value of the positive event. By collectively communicating and celebrating satisfying experiences with others, listeners may broaden their awareness and develop more open perspectives to others (Bryant & Veroff, 2007).

To date, only one study has examined the moderating effects of savoring. Using a diary-based longitudinal design, Jose, Lim, and Bryant (2012) examined whether or not the relationship between positive life events and psychosocial resources was moderated by savoring. Results revealed a significant moderated effect. However, the conditions by which the effect occurred were somewhat unique. Specifically, their results suggest under conditions of low positive events, high levels of savoring increased positive psychological resources (Jose et al., 2012).

At a preliminary level, this finding highlights the important role of savoring in developing positive psychological resources. However, this finding needs to be extended in two important ways. First, Jose, Lim, and Bryant (2012) recommend researchers re-examine their findings via an experimental design. Second, it is important to determine what outcomes (i.e., openness) are affected by savoring in the context of positive affect. The current study sought to address these gaps.

## **Current Study**

The scientific study of openness appears to serve as an important strategy to better identify pathways by which individuals can improve their quality of life. However, given openness is an abstract construct, a number of gaps exist within the literature. One major gap within the literature is identifying specific interventions targeted to increase openness in various domains of functioning. The current study aimed to fill this gap by experimentally determining whether a savoring intervention helps individuals increase attitudes of openness after engaging in a positive memory recall exercise. Research is consistent in identifying positive affect as an important component in bringing about openness. However, it is unknown if positive affect generated by a positive memory recall experience is conditionally related to openness. With this in mind, it is important to examine emotional uplifting strategies, specifically savoring, within the context of this relationship.

**Hypothesis.** In the current study, I investigated demographic differences in self-reports of openness traits at an exploratory level. However, the primary purpose of the current study was to experimentally investigate the effects of savoring on the positive affect-openness connection. Based on the predominant literature, I hypothesized savoring would moderate the relationships between positive affect generated through a memory recall task and different facets of openness. Specifically, I expected individuals who received a positive memory recall task and a structured savoring intervention would report the highest levels of openness scores.

## CHAPTER 3: METHODOLOGY

### Participants

A total of 105 students participated in the current study. Participants who displayed motivational and/or concentration concerns (e.g., not following directions, distracted by iPhone or Apple watch, sleeping) were removed from the analysis. In addition, participants who completed less than 90% of the survey items were also removed from the analysis. In total, 12 participants were removed from the study. The final sample consisted of 93 participants. The average age of the participant sample was 19.73 years with a standard deviation of 3.70. Participants ranged in age from 18 to 27. In response to the gender prompt, 63 participants (67.7%) identified as women and 30 participants (32.3%) identified as men. Fifty-four participants identified as White/Non-Hispanic (58.1%), 26 participants identified as African American (26%), six participants identified as Hispanic American (6.5%), six participants identified as Multi-racial (6.5%), and one participant identified as an international student (1.1%). Forty-eight participants reported being raised in a rural area (51.6%), while 25 participants reported being raised in a non-rural area (48.4%). Regarding socioeconomic status (SES), three participants reported growing up in a “low” SES background (3.2%), 13 participants in a “low-middle” SES background (14.0%), 42 participants reported growing up in a “middle” SES background (45.2%), 32 reported growing up in a “middle-high” SES background (34.4%), and three reported growing up in a “high” SES background (3.2%).

### Procedure

Participants were recruited for the study through SONA, an online system allowing students to participate in psychological research for credit. Students viewed a list of research studies being conducted and choose to enroll in studies they found interesting. Once registered

for a research study, students reported to the designated lab at their assigned appointment date and time. Before beginning the administration process, participants were asked to use the bathroom, if needed, and store all personal items, including electronics, in the available spaces provided. Participants then entered the lab, which is designed to resemble a relaxed therapeutic setting, and sat on a comfortable couch. Next, the researcher provided each participant with an informed consent document, which they read before signing. Participants who voluntarily signed the informed consent completed an initial PANAS measuring current mood and initial SOS measuring baseline state openness. Once participants completed these questionnaires, they engaged in one of two memory recall exercises. Participants were randomly assigned to either the positive memory recall task (See Appendix 1) or the neutral memory recall task (See Appendix 2). Following the completion of these exercises, participants completed a post-memory PANAS and SOS. After completing the questionnaires, participants were randomly assigned to one of two experimental conditions: a savoring intervention or control group. Participants in both conditions engaged in a 15-minute activity. Participants in the control condition were instructed to sit quietly for the duration of this time (See Appendix 3). Participants in the savoring intervention group completed a strength-based emotional uplifting exercise (See Appendix 4). Once the control and experimental procedures concluded, participants completed a survey packet containing the third administrations of the PANAS and SOS, two additional self-report openness measures, and one demographic form.

Finally, all participants were thoroughly debriefed. As part of the debriefing process, participants engaged in an active debriefing exercise to help stabilize their mood. The researcher also provided the participants with resources they can utilize in the event of emotional distress

following their participation in this research study. In total, participation in this study was approximately 70 minutes.

## Measures

**Demographic Form.** Participants reported their gender, age, race/ethnicity, college academic class status, rural/non-rural status, and socioeconomic status. Rural status was determined by asking participants a series of questions inquiring about the nature of their hometown and current living environment. In addition, participants reported the approximate number of people who reside in their hometown.

**The Positive and Negative Affect Schedule (PANAS).** Developed by Watson, Clark, and Tellegen (1988), the PANAS is a 20-item self-report measure of affect. Normed on a large sample of undergraduate students, the PANAS is comprised of two 10-item affect scales: positive affect (PA) and negative affect (NA). On each scale, respondents rate the extent to which they experienced specific emotions in the present moment using a 5-point Likert scale. Each response on the 5-point Likert scale ranges from 1 = *very slightly or not at all*, 25 = *a little*, 50 = *moderately*, 75 = *quite a bit*, to 100 = *very much*. The total scores obtained on each affect scale can range from 10 to 1,000. Higher scores on the positive affect scale indicate greater levels of reported joyous emotions (e.g., inspired, strong) and higher scores on the negative affect scale indicate greater reported levels of unpleasant emotions and mood states (e.g., anger, sadness). The PANAS demonstrates excellent psychometric properties. Specifically, the PANAS demonstrates solid internal consistency for positive affect ( $\alpha = .86-.90$ ) and negative affect ( $\alpha = .84-.87$ ) as well as excellent construct and predictive validity with measures of state and trait characteristics of mood and features of psychopathology, such as depression and anxiety (Watson et al., 1988). In the current study, the PANAS-PA subscale demonstrated good internal

consistency at baseline ( $\alpha = .82$ ). Similarly, the PANAS-NA subscale demonstrated solid internal consistency at baseline ( $\alpha = .72$ ).

**Miville-Guzman Universality-Diversity Scale – Short Form (M-GUDS-S).** Developed from the longer version created by Miville and colleagues (1999), the M-GUDS-S is a 15-item self-report measure used to assess openness and appreciation for multicultural similarities and differences among others to promote inclusiveness. Respondents rate the extent to which they agree or disagree with each statement using a 6-point Likert-type scale. Response choices for each statement range from 1 = *Strongly Disagree* to 6 = *Strongly Agree*. The total score obtained on the questionnaire can range from 15 to 90, with higher scores indicating greater reported levels of awareness and openness toward multicultural differences. The M-GUDS-S demonstrates solid internal consistency ( $\alpha = .89 - .95$ ) as well as excellent construct validity with measures of engagement in culturally diverse social activities, the impact of appreciating similarities and differences among others on personal growth, and comfortability interacting with diverse individuals (Fuertes et al., 2000). In the current study, internal consistency for the M-GUDS-S scale could not be analyzed because the measure was given once at the final stage after individuals had been randomly assigned to different groups twice.

**Curiosity and Exploration Inventory (CEI).** The CEI is a 7-item self-report measure of an individual's openness to seek novel experiences as a means to promote personal growth (Kashdan, Rose, & Fincham, 2004). Respondents rate the extent to which they agree or disagree with each statement using a 7-point Likert-type scale. Response choices range from 1 = *Strongly Disagree* to 7 = *Strongly Agree*. The total score obtained from the questionnaire can range from 7 to 77, with higher scores reflecting a stronger level of openness toward exploring novelty. The CEI demonstrates good psychometric properties, as evidenced by solid internal consistency ( $\alpha =$

.72-.80) as well as excellent construct validity with measures of motivation to physically search for and mindfully recognize new and challenging experiences and the ability to fully immerse oneself in stimulating activities, referred to as “flow” (Kashdan et al., 2004). Similar to the M-GUDS-S, internal consistency for the CEI scale could not be analyzed because the measure was given once at the final stage after individuals had been randomly assigned to different groups twice in the study.

**State Openness Scale (SOS).** The SOS is an 11 item self-report measure of an individual’s current orientation toward being open. Consistent with the practice outlined in Fleeson and Law (2015), 11 bipolar adjective items were developed to assess specific feature of openness. The adjectives lists were constructed from the NEO-PI-R adjective checklist (Costa & McCrae, 1992) to appropriately capture unique facet of openness. Participants rate how well each adjective describes them in the current moment on a scale of one to seven. A response of one indicates that the left-most adjective accurately describes the participant, usually lower levels of openness, and a response of seven indicates that the right-most adjective accurately describes the participant, usually a higher level of openness. A response of 4 suggests that both adjectives equally describe the participant. The total scores range from seven to 77, with higher scores reflecting a greater orientation to openness. In the current study, the SOS scale demonstrated mixed internal consistency ( $\alpha = .48-.91$ ).

### **Research Design and Analytic Plan**

At an exploratory level, we conducted a Factorial ANOVA to determine potential demographic (gender, rural status) differences in reports of openness. To ensure the memory recall tasks garner the intended effects on mood, participants were given two administrations of the PANAS. Within-subjects differences between the first and second administration of the

PANAS were examined as a manipulation check. It was expected participants in the positive memory recall group would report higher elevations of positive mood compared to those in the neutral memory recall group.

This study was implemented through a between-subjects experimental design. Participants were randomly assigned to one of two memory recall tasks (positive vs. neutral) and one of two savoring interventions (intervention vs. control). Each participant participated in two tasks in total. Three 2 (memory recall) x 2 (savoring intervention) factorial ANOVAs were conducted to determine group differences on three measures of openness.

## CHAPTER 4: RESULTS

### Rural and Gender Differences

A 2 (rural) x 2 (gender) Factorial ANOVA was evaluated to determine the main and interaction effects of rurality and gender on a self-reported measure of openness. Openness scores obtained from the initial administration of the SOS were used to analyze demographic differences. Results demonstrated reports of openness did not vary by gender,  $F(1, 89) = .21, p > .05, \eta_p^2 = 0.00$ . Specifically, men ( $M = 55.10, SD = 15.48$ ) and women ( $M = 55.98, SD = 8.89$ ) reported comparable levels of openness. Similarly, the results also revealed openness did not vary by rurality,  $F(1, 89) = .55, p > .05, \eta_p^2 = 0.01$ . Participants from rural areas ( $M = 56.15, SD = 13.52$ ) reported comparative levels of openness as participants from non-rural regions ( $M = 55.22, SD = 8.61$ ). There was a non-significant interaction effect between gender and rurality,  $F(1, 89) = .95, p > .05, \eta_p^2 = 0.01$ . Based on these results, it appears openness did not vary significantly by gender and rurality among college students.

### Pre-Group Checks

I examined baseline differences in positive affect and negative affect scores between individuals randomly assigned to the two memory conditions (positive memory and neutral memory) using a between-subjects MANOVA. The purpose of this analysis was to determine if the two groups differed on affect before random assignment to the memory conditions. Self-reports of positive affect were examined for the positive memory group ( $n = 47$ ) and the neutral memory group ( $n = 46$ ). Results revealed a non-significant main effect of memory condition on positive affect,  $F(1, 91) = .58, p > .05, \eta_p^2 = .01$ . In terms of negative affect, there was also a non-significant main effect of memory condition,  $F(1, 91) = .06, p > .05, \eta_p^2 = .00$ . Overall, these

results suggest that participants did not differ in reported affect before random assignment into memory conditions.

### **Manipulation Checks**

*Positive Affect.* As shown in Figure 1, mean positive affect scores significantly increased for participants who participated in the positive memory task. This finding was confirmed with a two-way mixed ANOVA with Memory (positive, neutral) and Time (time 1, time 2) as independent variables. The results illustrated a main effect of Time,  $F(1, 91) = 9.16, p = .00, \eta_p^2 = .09$ . Also, a significant interaction was revealed between Memory and Time,  $F(1, 91) = 7.24, p = .01, \eta_p^2 = .07$ . Specifically, this interaction effect suggests participants who engaged in the positive memory task experienced increases in positive affect from baseline to post memory condition completion when compared against individuals who completed the neutral memory task (Figure 1).

*Negative Affect.* As shown in Figure 2, mean negative affect scores decreased for participants who completed the neutral and positive memory tasks. These results were confirmed with a two-way mixed ANOVA with Memory (positive memory, neutral) and Time (time 1, time 2). A main effect of Time was revealed,  $F(1, 91) = 13.82, p = .00, \eta_p^2 = .13$ , but a significant interaction effect was not found between Memory and Time,  $F(1, 91) = .28, p = .60$ . Overall, these results revealed comparable decreases in negative affect from baseline to post memory condition among participants who completed the positive and neutral memory tasks.

### **Bivariate Correlations**

In order to evaluate the relationships among the proposed dependent variables (state openness, openness to diversity, and openness to curiosity), bivariate correlations were analyzed. The findings from these analyses are presented in Table 1. Results revealed moderately high positive relationships among the three dependent variables. This finding was somewhat

surprising, as the literature contends that these three indices of openness are relatively distinct from one another. To account for high correlations among these variables, I created a standard score to represent general openness. In order to obtain a standard score, I used a  $z$ -score transformation procedure, where I used the descriptive statistics for each dependent variable to generate three  $z$ -scores. Then, I averaged these three  $z$ -scores to produce one general openness score for each participant. The general openness score is more likely to capture common features of my openness variables. This general openness score was used in subsequent analyses.

### **Main and Interaction Effects for Memory and Savoring on General Openness**

Finally, I predicted memory task would interact with savoring interventions, such that individuals who participated in both the positive memory task and the savoring intervention would report the highest levels of openness. To examine my hypothesis, I analyzed a 2 (memory task)  $\times$  2 (intervention) ANOVA on general openness scores. The results revealed a non-significant main effect for memory task,  $F(1, 88) = 2.57, p = .34, \eta_p^2 = .72$ . Additionally, the results revealed a non-significant main effect for intervention,  $F(1, 88) = 29.12, p = .12, \eta_p^2 = .97$ . Finally, the analysis yielded a non-significant memory task by intervention interaction effect,  $F(1, 88) = .03, p = .87, \eta_p^2 = .00$ . These results suggest participants who engaged in the savoring intervention group did not receive a boost in self-reports of openness after participating in the positive memory task. Figure 3 provides marginal means for openness among memory tasks and intervention groups.

## CHAPTER 5: DISCUSSION

### **Review of Purpose**

The main purpose of the current study was to examine pathways by which savoring interventions can increase openness after experiencing a positive event. Given the overarching goal of the study, the following question was investigated: (a) do savoring interventions contribute to elevated reports of openness after engaging in a positive memory recall task?

### **Rural Findings and Implications**

In the current study, I examined how self-reports of openness vary based on rural versus non-rural status. The results did not show a significant difference in self-reports of openness between participants raised in rural areas compared to their non-rural peers. One possible explanation for the lack of a significant finding is the population sample used in the study. Since the participants were recruited from a large university, the sample may not have accurately represented rural populations, thus limiting insight into how strongly openness varies by rural groups. It is, therefore, important in future studies to obtain a population sample more reflective of rural communities to better determine if reports of openness vary between individuals from rural and non-rural areas.

It is important for future studies to explore openness within rural populations as it may serve as an important psychological resource within these communities. Specifically, social barriers, such as stigma and threats to privacy, may discourage individuals in rural areas from seeking behavioral resources, even when they are available and accessible (Rural Health Information Hub, 2017). One solution to encourage help-seeking behaviors in rural populations is identifying pathways by which openness can be successfully increased. Research shows openness to be associated with less judgment and greater acceptance of new experiences

(Lambie, 2014; Seong-Hee et al., 2015). Applied to the clinical setting, implementing strategies found to successfully increase openness may help rural community members overcome social barriers and motivate them to seek mental health services. For example, building openness at the individual level may encourage rural community members to feel comfortable attending and investing in therapy. At the community level, collective reports of openness may promote acceptance of help-seeking behaviors, which can potentially reduce social barriers and establish a supportive, less judgmental community regarding mental health treatment.

### **Effects of Memory Tasks**

As part of the analysis, I examined the effects of memory tasks (positive vs. neutral) on openness scores. Results did not reveal a significant effect for memory tasks on openness scores. This was unexpected given the large amount of literature suggesting tasks eliciting positive emotions increase openness (Bodenhausen, et al., 1994; Nelis et al., 2015; Quoidbach, Mikolajczak, & Gross, 2015; Strack et al., 1985). This is a very surprising finding because this result is inconsistent with a primary tenet of the broaden-and-build theory – interventions designed to increase positive affect should also increase openness scores. However, some criticism of the broaden-and-build theory has emerged. Specifically, Brown and colleagues (2013) refute the theory's "positivity ratio," which denotes an individual's proportion of positive to negative emotions. Regarding this proportion, the positivity ratio is generally associated with higher positive than negative emotions examined within a specific numeric range. Moreover, the positivity ratio distinguishes between flourishing and normal functioning, such that individuals who meet the positivity ratio are better able to maintain and extend positive emotions than individuals with values outside of this range (Brown, Sokal, & Friedman, 2013). If the positive ratio does not exist, this may explain why an increase of positive affect did not contribute to

elevations in the current study. Thus, it is possible my findings refute the building process in the broaden and build model, where positive affect may not always increase positive resources, such as openness.

Previous analysis indicated that the positive memory task elicited high levels of positive affect, which suggests the intervention is a valid positive affect intervention. Therefore, to explain the non-significant effect, I considered potential confounding variables associated with either the participants or the design of the study. Of importance, a number of participants were removed from the analysis because of inattention and motivation issues. Specifically, some participants appeared to rush through the experiment, were distracted by their Apple watches, and seemed excessively tired (sleepiness). Although I was able to invalidate some responses because of these behaviors, it is possible that I was not able to identify these concerns in others. These behaviors are particularly important because they can diminish the positive gains (increased positive affect) afforded by the positive memory task through the duration of the study. It is important that future research implement more behavioral checks for inattention and motivational issues so that the effects of positive affective tasks can accurately account for variation in openness scores. For instance, asking participants to remove smart watches, electronic devices, and other potential distractors from the task may increase the validity by which openness scores can be induced by positive affect interventions. In addition, using observer reports from multiple resources in the detection of invalidity indicators regarding attention and motivation may help delineate which participants should be removed from the analysis.

### **Effects of Savoring Intervention**

A second aim of the analysis was to determine how savoring interventions impacted reports of openness. Similar to the findings obtained for the memory intervention, results did not indicate a significant effect for savoring intervention on openness scores. Again, this finding was unexpected because the literature supports savoring as an effective strategy for increasing positive resources, like increased openness (Bryant & Veroff, 2007; Gross & John, 2003; Jose et al., 2012; Quoidbach et al., 2010; Tugade & Fredrickson, 2006). Measurement issues associated with openness may explain the non-significant effects for savoring. Upon close examination of the openness measures, it is possible the items better reflect trait-based features rather than state-based features of openness. This seems to be a prevalent issue among openness measures (Woo et al., 2014). For instance, fewer openness measures are designed to capture changes in openness within the moment. Moreover, the measures available for state-based openness appear to appear to possess weaker psychometric properties. This was evident in the State Openness Scale (SOS), which reported a baseline internal consistency estimate of below .70. In turn, this poses a significant challenge for researchers attempting to evaluate changes in openness after participating in short-term tasks. Given these difficulties, it is important for researchers to design a new, psychometrically sound measure associated with moment-to-moment variation in openness to better determine if positive affect and savoring interventions contribute to changes in this domain.

### **Interaction Effects**

In the current study, the primary hypothesis considered whether participants who participated in the positive memory task and savoring intervention would report the highest openness scores. Results did not reveal a significant interaction effect, suggesting that savoring

does not boost the effects of positive affect on openness. A possible explanation for this non-significant effect could be limitations in theories supporting the hypothesis. According to the broaden-and-build theory, generating and extending positive affect, through savoring, helps individuals increase positive psychological resources, like openness (Fredrickson, 2004; Fredrickson & Branigan, 2005). Moreover, savoring is thought to be a mechanism associated extending the effects of positive affect on positive psychological resources, like openness (Quoidbach et al., 2015). Yet, my findings fail to confirm either of these two theoretical positions. One explanation for my results is the potential for differentiation among different positive psychological resources. Specifically, it is possible interventions associated with broaden-and-build and emotional regulation principles may be an effective means for elevating certain positive psychological resources. To date, as currently conceived, the broaden-and-build model appears to generalize to all positive psychological resources. For instance, there is ample research suggesting the broaden-and-build interventions are effective in generating joy and optimism (Fredrickson, 2004; Fredrickson & Branigan, 2005). However, there may be something fundamentally different in joy/optimism vs. openness as a resource. For instance, joy and optimism may be reinforced through a vast array of social environments where openness may be reinforced through limited and very specific types of social environments (Mehl, Gosling, & Pennebaker, 2006). Given this drawback, it is important for future research to determine exactly which positive psychological resources are impacted by broaden-and-build interventions. For example, one solution may involve reanalyzing my study and including different dependent variables, such as joy, creativity and bravery, to determine if broaden and build interventions differentially affect a range of positive psychological resources.

## **Clinical Implications**

Mental health professionals strive to promote psychological well-being and overall wellness to help individuals live meaningful lives. The current study attempted to demonstrate how increasing and extending positive affect can expand openness. Despite non-significant effects, identifying models designed to increase openness could provide interpersonal benefits, especially among rural communities. For example, higher levels of openness can promote greater appreciation for interpersonal differences and perspectives. Such perspectives may encourage greater life satisfaction and other positive mental health outcomes. However, the broaden-and-build theory may not be the most effective model for mental health professionals to follow when attempting to increase openness. Mental health professionals may find greater success increasing openness using other positive psychological models, such as hope or strength-based theories (Cheavens, Feldman, Woodward, & Snyder, 2006; Rashid, 2015). Using these models, mental health professionals may be able to more effectively elevate openness.

## **Limitations**

Several limitations were identified and need to be addressed. First, generalization of these findings to other demographic and clinical subpopulation groups may be difficult to establish. The majority of the participants identified as young, moderate to high resourced, Caucasian women. As a result, my results may not generalize samples of men, older adults, ethnic minorities, and individuals receiving mental health treatment. Future studies need to re-analyze my study to determine if differences in age, ethnicity, gender, and clinical health status affect the generalizability of my findings.

Another limitation in the current study was the length of the study. In total, the current study took about approximately one hour to complete. Variation on openness scores was

dependent upon participants generating and maintaining positivity through two different experimental tasks and a host of self-report surveys. In fact, the final survey packet consisted of nine questionnaires. While completing the third survey packet, it is possible participants experienced frustration associated with the length of the study, which may have affected my findings. For example, some participants who appeared significantly frustrated (e.g., rolling their eyes, sighing, verbally expressing frustration) seemed to quickly complete the final survey packet without full concentration. As a result, it may be helpful to find ways to answer the study's question through a condensed process (e.g., fewer surveys). Moreover, it may also be helpful to include "check questions" to determine if participants are actively following instructions while completing the self-report questionnaires. This may help increase valid responses and reduce random responding.

The types of measures used in the study could potentially be a third limitation. The quantitative data obtained in the study came from self-report surveys. The use of self-report surveys may increase the effect of social desirability on the proposed effects. To prevent social desirability concerns, behavioral or observational measures of openness should be included in future studies. For example, presenting participants with a choice to listen to familiar music or music from another culture may help detect differing levels of openness (e.g., openness to experience, willingness to try new things). Including such tasks in studies may increase the likelihood of revealing more accurate findings.

### **General Conclusions**

The purpose of the current study was to advance the literature by identifying a positive psychological process constructed to increase openness. Specifically, I examined how positive psychological interventions, such as savoring, can be paired with positive memory recall to

increase positive affect and build psychological resources, such as openness. Surprisingly, neither the positive affect nor the savoring intervention increased openness scores. This may indicate positive psychological interventions identified by the broaden-and-build theory may not be an effective means by which individuals can increase openness.

## References

- Albuquerque, I., Lima, M., Matos, M., & Figueiredo, C. (2013). The interplay among levels of personality: The mediator effect of personal projects between the Big Five and subjective well-being. *Journal of Happiness Studies, 14*, 235-250. doi:10.1007/s10902-012-9326-6.
- Ang, S., van Dyne, L., & Koh, C. (2006). Personality correlates of the four-factor model of cultural intelligence. *Group & Organization Management, 31*, 100-123. doi:10.1177/1059601105275267.
- Bardi, A., Guerra, V. M., & Ramdeny, G. D. (2009). Openness and ambiguity intolerance: Their differential relations to well-being in the context of an academic life transition. *Personality and Individual Differences, 47*, 219-223. doi:10.1016/j.paid.2009.03.003.
- Bodenhausen, G. V., Kramer, G. P., & Süsler, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology, 66*, 621-632. doi:10.1037/0022-3514.66.4.621.
- Brown, N. L., Sokal, A. D., & Friedman, H. L. (2013). The complex dynamics of wishful thinking: The critical positivity ratio. *American Psychologist, 68*(9), 801-813. doi:10.1037/a0032850.
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Burns, A. B., Brown, J. S., Sachs-Ericsson, N., Plant, E. A., Curtis, J. T., Fredrickson, B. L., & Joiner, T. E. (2008). Upward spirals of positive emotion and coping: Replication, extension, and initial exploration of neurochemical substrates. *Personality and Individual Differences, 44*, 360-370. doi:10.1016/j.paid.2007.08.015.

- Cheavens, J. S., Feldman, D. B., Woodward, J. T., & Snyder, C. R. (2006). Hope in cognitive psychotherapies: On working with client strengths. *Journal of Cognitive Psychotherapy, 20*(2), 135-145. doi:10.1891/jcop.20.2.135.
- Costa, P., & McCrae, R. (1992). *NEO-PI-R: Professional Manual*. Lutz, FL: Psychological Assessment and Resources, Inc.
- Costa, P. J., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology, 81*, 322-331. doi:10.1037/0022-3514.81.2.322.
- Fleeson, W., & Law, M. K. (2015). Trait enactments as density distributions: The role of actors, situations, and observers in explaining stability and variability. *Journal of Personality and Social Psychology, 108*(6), 1090-1104. doi:10.1037/a0039517.
- Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions: Biological Sciences, 299*, 1763-1768. doi:10.1098/rstb.2004.0176.
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion, 19*, 313-332. doi:10.1080/02699930441000238.
- Fuertes, J. N., Miville, M. L., Mohr, J. J., Sedlacek, W. E., & Gretchen, D. (2000). Factor structure and short form of the Miville-Guzman Universality-Diversity Scale. *Measurement and Evaluation in Counseling and Development, 33*, 1-10.
- Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of depression. *Journal of Personality and Social Psychology, 98*, 882-891. doi:10.1037/a0018253.

- of emotion dysfunctions and deficits in psychopathology. *Clinical Psychology Review*, 30, 849-864. doi:10.1016/j.cpr.2010.03.002.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implication for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362. doi:10.1037/0022-3514.85.2.348.
- Hurley, D. B., & Kwon, P. (2013). Savoring helps most when you have little: Interaction between savoring the moment and uplifts on positive affect and satisfaction with life. *Journal of Happiness Studies*, 14, 1261-1271. doi:10.1007/s10902-012-9377-8.
- Ivcevic, Z., & Brackett, M. A. (2015). Predicting creativity: Interactive effects of openness to experience and emotion regulation ability. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 480-487. doi:10.1037/a0039826.
- Jose, P. E., Lim, B. T., & Bryant, F. B. (2012). Does savoring increase happiness? A daily diary study. *The Journal of Positive Psychology*, 7, 176-187.  
doi:10.1080/17439760.2012.671345.
- Jonassaint, C., Siegler, I., Barefoot, J., Edwards, C., & Williams, R. (2011). Low life course socioeconomic status (SES) is associated with negative NEO PI-R personality patterns. *International Journal of Behavioral Medicine*, 18, 13-21 9p. doi:10.1007/s12529-009-9069-x.
- Kashdan, T. B., Rose, P., & Fincham, F. D. (2004). Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities. *Journal of Personality Assessment*, 82, 291-305.
- Lambie, J. (2014). *How to be critically open-minded: A psychological and historical analysis*. Basingstoke, Hampshire, UK; New York: Palgrave Macmillan, 2014.

- Li, M., Mobley, W. H., & Kelly, A. (2016). Linking personality to cultural intelligence: An interactive effect of openness and agreeableness. *Personality and Individual Differences, 89*, 105-110. doi:10.1016/j.paid.2015.09.050.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*, 803-855. doi:10.1037/0033-2909.131.6.803.
- Mehl, M. R., Gosling, S. D., & Pennebaker, J. W. (2006). Personality in its natural habitat: Manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology, 90*(5), 862-877. doi:10.1037/0022-3514.90.5.862
- Miville, M. L., Gelso, C. J., Pannu, R., Liu, W., Touradji, P., Holloway, P., & Fuertes, J. N. (1999). Appreciating similarities and valuing differences: The Miville-Guzman Universality Diversity Scale. *Journal of Counseling Psychology, 46*, 291-307.
- Nelis, S., Holmes, E. A., Palmieri, R., Bellelli, G., & Raes, F. (2015). Thinking back about a positive event: The impact of processing style on positive affect. *Frontiers in Psychiatry, 6*, 1-13.
- Quoidbach, J., Berry, E. V., Hansenne, M., & Mikolajczak, M. (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening strategies. *Personality and Individual Differences, 49*, 368-373. doi:10.1016/j.paid.2010.03.048.
- Quoidbach, J., Mikolajczak, M., & Gross, J. J. (2015). Positive interventions: An emotion regulation perspective. *Psychological Bulletin, 141*, 655-693. doi:10.1037/a0038648.
- Rashid, T. (2015). Positive psychotherapy: A strength-based approach. *The Journal of Positive Psychology, 10*(1), 25-40. doi:10.1080/17439760.2014.92041.

- Rasmussen, A. S., & Berntsen, D. (2010). Personality traits and autobiographical memory: Openness is positively related to the experience and usage of recollections. *Memory, 18*, 774-786. doi:10.1080/09658211.2010.514270.
- “Rural Health Information Hub.” (2017, June 9). Retrieved March 07, 2018, from <https://www.ruralhealthinfo.org/topics/healthcare-access#barriers>.
- Schommer-Aikins, M., & Easter, M. (2015). Epistemic processing of communication and openness to diversity preparing students for a global society. *American Society of Business and Behavioral Sciences (ASBBS), 11*.
- Seong-Hee, P., Yukyoum, K., & Won-Jae, S. (2015). Role of curiosity and openness to experience: The Big Five traits on sport media consumption behaviors. *South African Journal for Research in Sport, Physical Education & Recreation (SAJR SPER), 37*, 153-167.
- Spink, J. L., Green, T. B., & Jorgensen, R. S. (2014). Openness moderates the relationship between modern health worries and neuroticism. *Personality and Individual Differences, 70*, 35-38. doi:10.1016/j.paid.2014.06.010.
- Strack, F., Schwarz, N., & Gschneidinger, E. (1985). Happiness and reminiscing: The role of time perspective, affect, and mode of thinking. *Journal of Personality and Social Psychology, 49*, 1460-1469. doi:10.1037/0022-3514.49.6.1460.
- Sutin, A. R., Costa, P. J., Evans, M. K., & Zonderman, A. B. (2013). Personality assessment in a diverse urban sample. *Psychological Assessment, 25*, 1007-1012. doi:10.1037/a0032396.
- Tugade, M. M., & Fredrickson, B. L. (2007). Regulation of positive emotions: Emotion regulation strategies that promote resilience. *Journal of Happiness Studies, 8*, 311-333. doi:10.1007/s10902-006-9015-4.

- Vianello, M., Schnabel, K., Sriram, N., & Nosek, B. (2013). Gender differences in implicit and explicit personality traits. *Personality and Individual Differences, 55*, 994-999.  
doi:10.1016/j.paid.2013.08.008.
- Watson, D., Clark, L., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 1988, 54*, 1063-70.
- Williams, P. G., Rau, H. K., Cribbet, M. R., & Gunn, H. E. (2009). Openness to experience and stress regulation. *Journal of Research in Personality, 43*, 777-784.  
doi:10.1016/j.jrp.2009.06.003.
- Woo, S. E., Chernyshenko, O. S., Longley, A., Zhang, Z., Chiu, C., & Stark, S. E. (2014). Openness to experience: Its lower level structure, measurement, and cross-cultural equivalence. *Journal of Personality Assessment, 96*(1), 29-45.  
doi:10.1080/00223891.2013.806328.

**TABLE 1***Table 1. Correlations among the Three Openness Indices*

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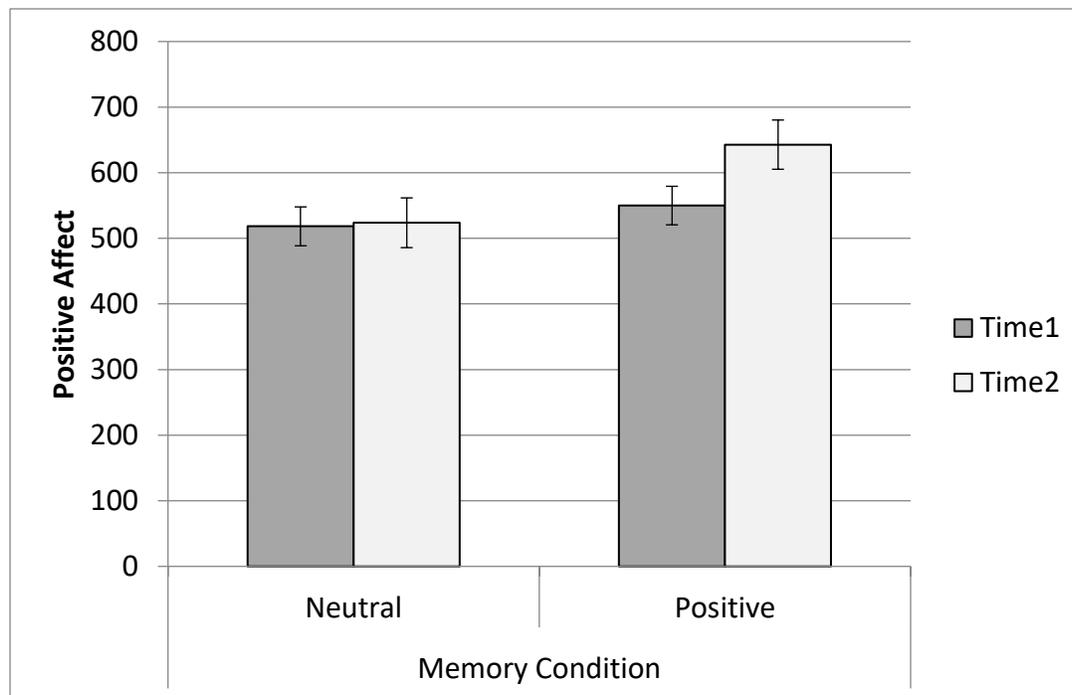
Variables	1	2	3
1. State Openness	--		
2. Openness to Diversity	.403**	--	
3. Openness to Curiosity	.570**	.515**	--

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Note: \*\*  $p < .01$

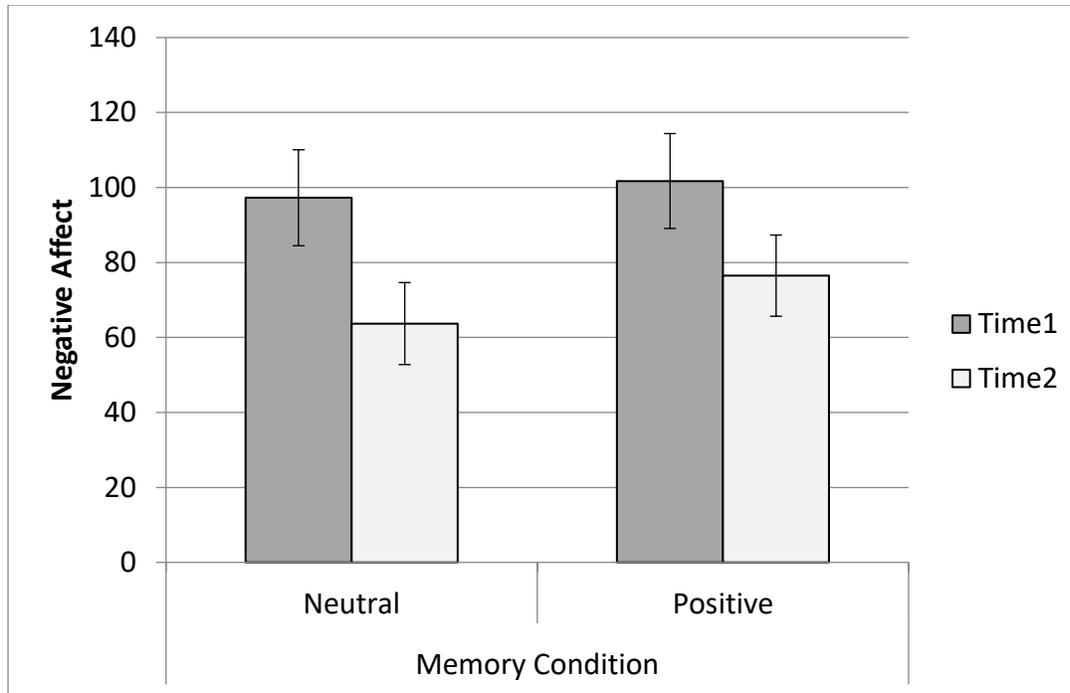
**FIGURE 1**

*Figure 1: The Interaction Effects of Memory Recall and Time on Positive Affect with Means and Standard Errors*



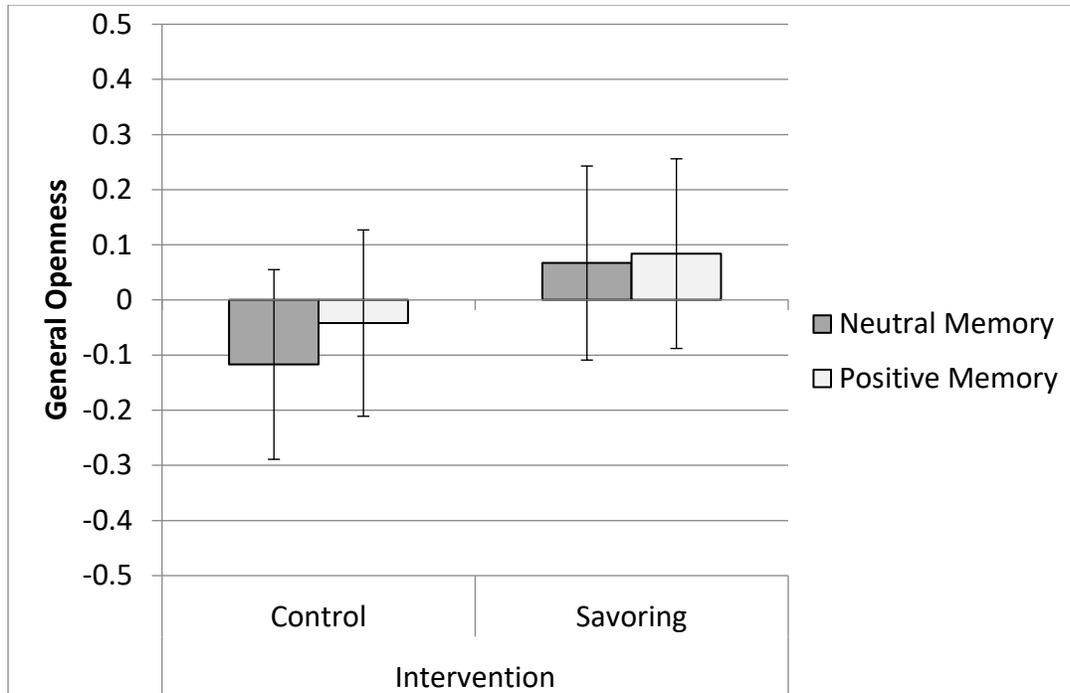
**FIGURE 2**

*Figure 2: The Interaction Effects of Memory Recall and Time on Negative Affect with Means and Standard Errors*



**FIGURE 3**

*Figure 3: The Interaction Effects of Memory Recall and Savoring Intervention on General Openness with Means and Standard Errors*



## APPENDIX 1

### Positive Memory Recall Task

**Pre-Task Activities:** *The researcher will give the participant the Informed Consent document to read before signing. Participants will then receive a pre-mood measure and baseline openness questionnaire before engaging in the memory task.*

**Positive Memory Recall Task:** *Once the participant returns the signed Informed Consent document, the researcher will prepare the participant for the recall task.*

“I am going to ask you to complete some memory and journaling-based tasks. Here is a laptop computer. On a word document, I would like for you to write down some of your past accomplishments. These accomplishments can be anything from the last two to three years. When ready, just start jotting down notes about the accomplishments you have achieved over the last two to three years. Jot as many accomplishments down as you can think of for the next minute or so.”

*After giving these instructions, the researcher will stay in his/her seat and wait approximately 1 minute for the participant to complete his/her list of accomplishments. Once the participant has completed his/her list, the researcher will give the following instructions:*

“Thank you for completing this list. Now, I want you to look at the list and pick out one accomplishment that stands out over all of the others. Choose the accomplishment that you are most proud of achieving; the one you invested a substantial amount of time and energy to complete. Please take a few moments to choose the one accomplishment that makes you feel the most happy and prideful. Please let me know when you have chosen one.”

*The researcher will wait for the participant to choose one accomplishment. When the participant has confirmed that he/she has chosen an accomplishment, give the following instructions:*

“Now that you have your chosen accomplishment, I would like for you to engage in a small writing task. Specifically, I would like for you to write a personal story highlighting your chosen accomplishment. On this computer, I would like for you to write about the journey of achieving your chosen accomplishment. Remember a good story should have a beginning, middle, and an end. Also, good stories outline how important emotions change throughout the journey of completing a goal. When ready think about how you achieved your accomplishment. Specifically, reflect on the barriers you overcame and the emotions you experienced. Once you have the outline of your story in your head, please type it out on the computer. Please write at least 400 words summarizing the story of your achievement.”

*After the participant has finished the writing task, leave the word document on the computer and ask the participant to complete the post-mood measure.*

## APPENDIX 2

### Neutral Memory Recall Task

**Pre-Task Activities:** *The researcher will give the participant the Informed Consent document to read before signing.*

**Neutral Memory Recall Task:** *Once the participant returns the signed Informed Consent document, the researcher will prepare the participant for the recall task.*

“I am going to ask you to complete some memory and journaling-based tasks. Here is a laptop computer. On a word document, I would like for you to write down some of your memories that elicit a neutral response – one that is neither positive nor negative. For example, recalling a memory about an event that did not elicit a lot of emotions. When ready, just start jotting down notes about neutral memories you have experienced over the past two to three years. Jot as many neutral memories down as you can think of for the next minute or so.”

*After giving these instructions, the researcher will stay in his/her seat and wait approximately 1 minute for the participant to complete his/her list of neutral memories. Once the participant has completed his/her list, the researcher will give the following instructions:*

“Thank you for completing this list. Now, I want you to look at the list and pick out one neutral memory that stands out over all of the others. Choose the memory that you feel you had the least emotional response. Please take a few moments to choose the one neutral memory that elicits the fewest emotions. Please let me know when you have chosen one.”

*The researcher will wait for the participant to choose one neutral memory. When the participant has confirmed that he/she has chosen a memory, give the following instructions:*

“Now that you have your chosen neutral memory, I would like for you to engage in a small writing task. Specifically, I would like for you to write a personal story highlighting your neutral memory. On this computer, I would like for you to write about your journey of experiencing this neutral memory. Remember, a good story should have a beginning, middle, and an end. Also, good stories outline how feelings change throughout the storyline. When ready, think about how you experienced this neutral memory. Specifically, reflect on the actions you participated in so that you can recreate the entire memory. Once you have the outline of your story in your head, please type it out on the computer. Please write at least 400 words summarizing the story of your neutral memory.”

*After the participant has finished the writing task, leave the word document on the computer and ask the participant to complete the post-mood measure.*

### APPENDIX 3

#### True Control Condition

**Prompt:** Thank you for participating in the previous exercise. We need to take care of some things that are important to the study. Please get comfortable and wait here until we get back. Please do not explore the room or take out anything to keep you busy. This may take us a little while. We will have one or two more small things for you to complete when we return.

*(Please leave the room for 15 minutes. Make sure you look busy when you go into the hidden room. It is possible that the participant may be able to see part of you through the 2-way mirror).*

## APPENDIX 4

### Savoring Uplift – Intensifying the Moment

*Instructions: I am going to read you a list of words and their corresponding definitions or descriptions. Please listen to each word and description carefully. After reading the words and descriptions to you, think back on your memories and try to vividly recall an instance where your behavior was reflective of each word. For example, try to think of a memory where you acted wisely. Once you have pinpointed wisdom, briefly describe the experience, how your actions reflected each word, and how the experience made you feel to me. Do you understand what is being asked of you?*

1. **Wisdom:** Wise individuals are characterized by a deep understanding or knowledge based on good reasoning or information; they demonstrate good sense or sound judgment; they have a keen perception of surroundings, others, and situations; they exhibit stability and consistency in multiple aspects of life; and they accumulate a number of life skills and positive experiences. *Please recall and share an instance in your story where you were wise.*

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2. **Creative:** Creative individuals are characterized by their ability to think outside of the box in order to formulate new ideas or to make new things; these individuals refrain from imitating the work of others; while many individuals may be overwhelmed by confusion and chaos, creative individuals find order and opportunity to discover hidden meanings in chaotic situations; and they are motivated by the process of completing tasks rather than the external rewards. *Please recall and share an instance in your story where you were creative.*

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3. **Confident:** Confident individuals are characterized by their belief and positive assurance in their ability to perform tasks well or to achieve success in multiple areas of life; they have a strong love for themselves and trust and appreciate their abilities and strengths while accepting shortcomings and areas of growth; often times, they have a strong sense of belonging and personal security; they are able to find happiness from within themselves rather than relying on receiving it from someone else. *Please recall and share an instance in your story where you were confident.*

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4. **Perseverant:** Perseverant individuals are characterized by their steady persistence to finish what they started in spite of difficulties, obstacles, or discouragement; no matter the task or project, they are able to finish it in a timely manner; while in the process of completing a task or project, these individuals do not get distracted; they are able to focus their attention on specific goals and desired outcomes with ease; and they find pleasure in completing projects or tasks. *Please recall and share an instance in your story where you were perseverant.*
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5. **Kind:** Kind individuals are characterized by their gentle disposition and natural desire to help others; they are aware of the needs of others and are willing to meet those needs to the best of their ability; they are motivated to do good deeds and favors for others and find enjoyment in bringing happiness to others, even if they do not know them well; they are never too busy to do a favor for others; and they believe that others are worthy of attention and affirmation for their own sake as human beings. *Please recall and share an instance in your story where you were kind.*
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6. **Friendly:** Friendly individuals are characterized by their warm and approachable demeanor in social situations; they have a sincere interest in others and often refrain from focusing conversations on themselves or their personal problems; they are good listeners and easily provide comfort and support to those in need; they are charismatic and are often known for being the first to speak in social situations; and they make others feel at ease with their cheerful, likeable, and welcoming character. *Please recall and share an instance in your story where you were friendly.*
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## APPENDIX 5

### Debriefing Form

We thank you for your participation in this study. We are very interested in how certain imagery tasks influence the propensity to engage in certain behaviors. It is our hope that your responses will help us understand how certain imagination techniques of young adults increase/decrease positive emotions and foster/deplete important psychological resources. We also hope to use your responses to understand how imagination can be used to protect against emotional distress.

Sometimes, when people participate in research studies, they may become aware of their own feelings and experiences that they may wish to discuss with others, including counseling professionals. We have provided you with a list of resources in case you become aware of your interest in seeking help to cope with your thoughts and feelings about your relationships with friends and family, or to cope with your emotional distress. Please feel free to talk with your school counselor if you have any questions, concerns, or comments. You may also wish to contact the primary researcher of this study, Dr. Jeff Klibert, at [jklibert@georgiasouthern.edu](mailto:jklibert@georgiasouthern.edu).

Counseling and Career Development Center  
Forest Drive  
P.O. Box 8011  
Georgia Southern University  
Statesboro, GA 30460-8011  
PHONE: (912) 478-5541  
FAX: (912) 478-0834

or

National Suicide Prevention Hot-Line  
1-800-273-8255