

DREAM RECALL, DREAM EMOTIONS, AND SUBJECTIVE WELL-BEING

by

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I dedicate this research paper to my advisor and friend, Dr. Bill Compton, who supported me every step of the way through this project. His patience and dedication made this research possible.

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## **ABSTRACT**

Research in dreams has primarily focused on the experience of negative dreams and nightmares. This study aimed to interpret the possible connections of positive dream emotions and dream recall to subjective well-being and mental boundaries. Participants consisted of 101 adults who completed several online surveys. In this study, frequent dream recall was tied with increased meaning in life, while low dream recall was tied to current lack of positive affect and perceived lack of meaning in life. Additional findings included associations between gender, boundary thinness, and increased capacity for fantasy in participants who frequently remembered their dreams. Thinness of mental boundaries was negatively associated with subjective well-being. Further research is needed to determine whether these findings generalize to other populations.

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## CHAPTER I: INTRODUCTION

### **Mutability of Happiness and Well-Being**

The pursuit of personal happiness is an ingrained part of Western culture (Lyubomirsky, Sheldon, & Schkade, 2005). There continues to be debate, however, over which factors are most strongly linked to happiness and whether one's level of happiness can be changed significantly as the result of environmental conditions and efforts to increase personal satisfaction. The potential impact of genetic factors on subjective well-being has been of interest to researchers for a number of years.

Lykken and Tellegen (1996) investigated the self-reported happiness of 2,310 members of Minnesota's twin registry born between 1936 and 1955. The researchers attempted to correlate listed registry data including socio-economic status, approximate yearly income, level of educational attainment, and marital status with participants' perceptions of their happiness levels compared to the general population. In addition, the researchers assessed the participants on "traditionalism," a measure of traditional values and spirituality that had previously been linked with higher reported levels of happiness and well-being (Lykken & Tellegen, 1996). They found that demographic factors were only weakly correlated with self-reported happiness, with levels of explained variability ranging from 1% for marital status to 3% for socioeconomic status. Likewise, the researchers found no links between traditionalism and well-being, and highly contented individuals were no more likely to espouse traditional values than their less contented counterparts. However, the evidence for genetic links in perceived happiness was stronger (Lykken & Tellegen, 1996). Lykken and Tellegen (1996) administered well-being measures to pairs of both monozygotic and dizygotic twins and then retested the

pairs after a 10 year period. The results from twin A in each pair were compared to twin B and the results from twin B were compared to twin A across time. The well-being correlations for the dizygotic twins were negligible, but the monozygotic twins received test-retest correlations of .50, suggesting that much of the variation in self-perceived happiness may be genetic (Lykken & Tellegen, 1996). Overall, Lykken and Tellegen suggested that approximately 80% of personal happiness may be accounted for by genetics (1996). They further went on to suggest that long-term happiness may be associated with a “set point” that determines a person’s baseline level of well-being. They suggested that this “set point” was largely determined by genetic influences.

Although many researchers acknowledge the presence of a happiness “set point” as asserted by Lykken and Tellegen (1996), the prevailing viewpoint on the mutability of happiness is less pessimistic (Lyubomirsky, Sheldon, & Schkade, 2005). Lyubomirsky, Sheldon, and Schkade (2005) listed four sources of optimism that seem to indicate that personal happiness is at least partially controllable. The researchers cited the established effectiveness of interventions in producing gains in measurable happiness, at least in the short term, as well as the fact that older people tend to be happier than younger people, suggesting a general move toward greater happiness over time. Furthermore, efforts to increase one’s happiness through the pursuit of intrinsically motivating goals and the practice of distancing oneself from environmental factors that are not conducive to happiness can produce increased well-being, suggesting that one’s personal happiness can be a product of volition (Lyubomirsky, Sheldon, & Schkade, 2005). The researchers in this study attempted, therefore, to account for the amount of variation in personal happiness that was the result of intentional and motivational factors. At the time, the

amount of variability in happiness established by genetics was generally held to be approximately 50%, Lykken and Tellegen's (1996) greater estimation notwithstanding (e.g., Braungart et al., 1992). Furthermore, environmental factors were generally believed to account for about 10% of the variability in measures of happiness and well-being (Lyubomirsky, Sheldon, & Schkade, 2005). Assuming these estimates to be true, approximately 40% of an individual's current level of happiness (that is, the proportion not thought to be controlled by genetic or environmental factors), could be accounted for by intentional activity in the part of the individual. Lyubomirsky, Sheldon, and Schkade (2005) contend that the manipulation of intentional activity in the form of volitional activity such as achieving important goals confers several advantages. The episodic nature of intentional activities ensure that they can be varied enough to stave off boredom and the effects of adaptation. Variability of activities introduces novelty, a sensation that is often perceived as pleasurable (Lyubomirsky, Sheldon, & Schkade, 2005). Finally, the conscious effort of improving oneself and seeking happiness tends to counteract the natural adaptation to one's unfavorable environmental circumstances (Lyubomirsky, Sheldon, & Schkade, 2005).

While earlier estimates of the genetic influences on happiness still left room for substantial improvements in well-being, current thinking suggests that the ability to impact one's own well-being may be even greater than previously thought. A number of longitudinal studies have found that happiness and well-being can change significantly over time (Fujita & Diener, 2005; Headey, 2008; Headey, Muffels, & Wagner, 2010). For example, a 17-year study of Germans found that 24% of people changed their well-being significantly over that time period (Fujita & Diener, 2005). Current thinking tends to

suggest that happiness and well-being can be modified by intentional activity and that previous estimates of 40%-50% for genetic influences were overly deterministic (Diener, 2008).

### **Positive Psychology Interventions**

Because a substantial portion of one's happiness may potentially be changed through conscious effort and environmental manipulation, it would stand to reason that research-validated interventions in happiness and well-being could produce an increase in personal satisfaction (Lyubomirsky, Sheldon, & Schkade, 2005). Although a number of interventions have been proposed through diverse sources of varying psychological rigor, few of the early studies delved more deeply than anecdotal and case study-based evidence. A study by Seligman, Steen, Park, and Peterson (2005) attempted to amend this oversight by evaluating five positive psychology interventions using experimental methods. Participants were measured on both absence of depressive symptoms and presence of symptoms associated with happiness. Happiness was defined in this study as encompassing three parameters: positive emotions and sensations of pleasure, engagement, and meaningfulness. Of the five internet-based interventions covered by the article, two were found to have benefits lasting for approximately six months. These were: (1.) "using signature strengths in new ways," in which participants took an online survey identifying five positive "signature strengths" and were asked to employ one of these strengths in a different way each day for a week, and (2.) "three good things," in which participants were asked to identify three good things that had happened to them during the day and make conjectures about their causes. One intervention was found to have benefits lasting for one month (i.e. the "gratitude visit," which involved sending a

letter of thanks to a person that had been helpful in the past but that the participant did not feel had been adequately thanked). Simply identifying one's signature strengths or completing the placebo activity of recording one's early memories was found only to create transient improvement (Seligman, Steen, Park, & Peterson, 2005). Notably, the researchers attributed the relatively long-lasting effects of these interventions to continued adherence past the experimental period (indicated upon follow-up) that would tend to suggest that the participants found the interventions pleasant and helpful enough to continue their use without prompting (Seligman, Steen, Park, & Peterson, 2005).

Positive psychology interventions have also been found to have utility in the treatment of depression. A study by Seligman, Rashid, and Parks (2006) examined the use of common positive psychology interventions in a therapeutic setting. In addition to previously studied interventions (three good things, using signature strengths, gratitude visit), this study included "savoring," or taking pleasure in a daily activity that one usually rushes through (i.e., showering, eating), an "obituary/biography" exercise, in which participants are to write a short autobiography of their ideal life, and "active/constructive responding," which involves responding constructively to others when they make positive announcements (Seligman, Rashid, & Parks, 2006). These positive interventions were employed during group and individual therapy sessions of individuals with mild to moderate depressive symptoms as identified by scores on the Beck Depression Inventory. The participants in this group were matched with control subjects also reporting depressive symptoms who did not receive treatment. The participants in the positive therapy group were introduced to one new intervention a week, and sessions were split between discussing previous interventions and their

effectiveness and teaching the intervention to be employed in the next week. The participants in the positive therapy group experienced reductions in depressive symptoms and increases in reported well-being during the course of the sessions. Additionally, gains from the positive therapy sessions were still apparent in one-year follow-ups, while participants in the control group reported the same levels of depressive symptoms as they had at the start of the study (Seligman, Rashid, & Parks, 2006).

### **Boundaries and Subjective Well-Being**

When discussing the correlates of subjective well-being, research suggests that personal factors play a substantial role in an individual's perception of overall contentment. Personality factors such as optimism appear to have a clear tie with lifelong well-being (Boehm & Kubzansky, 2012; Carver & Conner-Smith, 2010), and less obvious personality factors, particularly conscientiousness, have recently been linked with increased overall well-being and general health outcomes (Friedman & Kern, 2014). However, despite frequent forays in the scientific literature into the relationship between personality factors in subjective well-being, little research exists on the relationship between well-being and the thickness or thinness of boundaries in the mind, a concept rooted in the study of personality.

The concept of mental boundaries refers to an individual's tendency to separate thoughts and emotions, preference for clarity over ambiguity, and to exist in the "here and now" (Hartmann, Harrison, & Zboroski, 2001). In this view, an individual with thick boundaries would therefore see the world in black and white, have a clearly delineated concept of past, present and future, easily separate thoughts and feelings, and could clearly distinguish between sleeping and waking states. Conversely, those with thin

boundaries tend to see the world in shades of gray, may blend past and present in personal assessment, have difficulty separating thoughts and feelings, and may be more likely to experience half-awake or hypnagogic states of consciousness (Hartmann, Harrison, & Zboroski, 2001).

The latter finding may account for the suggested correlation between thinner boundaries and increased dream recall (Hartmann, Harrison, & Zboroski, 2001; Hartmann, Rosen, & Rand, 1998). Additionally, the dreams of individuals with thin boundaries are reported to be more vivid and emotional and to contain more meaningful interactions than the dreams of individuals with thick boundaries (Hartmann, Harrison, & Zboroski, 2001). However, because thickness or thinness of mental boundaries appears to be a construct that, though well-studied, correlates only weakly to other established personality domains (with the exception of openness to experience from the Big Five personality inventory), it is not yet established whether individuals with thin boundaries, that is, individuals likely to remember and value their dreams, are more or less likely to experienced increased well-being compared to the general population. Indeed, the study of dreams has only rarely intersected with the study of subjective well-being in the scientific literature.

### **Dream Recall and Dream Emotions**

Attitudes toward dreams and dreaming in mainstream psychology have varied considerably since the inception of the discipline. From the psychoanalytic tradition, which considers the analysis of dreams to be “a privileged path of access to the unconscious” (Rodríguez, 2001, p. 397), to neurobiological approaches that reduce the recall of meaningful content from one’s dreams to the presence of dream-inducing theta

and delta waves during REM sleep (Marzano et al, 2011), scientific beliefs on the significance of dreams have run the gamut from ascribing a great deal of significance to dreams to little or no significance at all. For this reason, it has become more commonplace to look at dreams on the basis of the significance individuals ascribe to them rather than in the context of their significance for society as a whole (King & DeCicco, 2009; Meyer & Shore, 2001).

A study by Meyer and Shore (2001) examined the beliefs of young children about the origin and nature of their dreams. As the children grew older, they tended to follow a predictable and logical pattern of understanding dreams to be first unreal, that is, not actually occurring, then private, or unable to be viewed by others, and finally internal, or stemming from one's own consciousness and not from external sources. The researchers in this study took this progression as evidence that even very young children in Western societies tend to arrive at the view that dreams are "insignificant and oftentimes meaningless" and that this view is the prevailing cultural norm (Meyer & Shore, 2001). Nevertheless, anecdotal evidence suggests that people tend to ascribe some significance to their dreams, often related to a connection to waking life.

Results of a study by King and DeCicco (2009) tend to contradict the view that people in Western societies consider their dreams to be devoid of meaning. In this study, participants were asked to indicate whether they considered their dreams to be important and relevant and whether they believed their dreams to contain information about eight major aspects of everyday life. A solid majority of participants (81%) indicated that they believed their dreams to contain important and relevant information about their everyday life. Of those dream aspects the participants rated as important, the most frequently cited



belief was “relationships” followed by “decisions I am currently making.” Furthermore, participants who reported lower scores on measures of physical and emotional health tended to report a belief that physical functioning was the most important element in their dreams, and participants who rated spirituality as the most important aspect of their dreams reported higher scores on measures of metapersonal self-construal, a belief tied with spirituality. These results seem to suggest that people do not view their dreams as meaningless, but rather feel that dreams have a significant connection to daily life and beliefs about the self (King & DeCicco, 2009).

Although it appears that Westerners tend to view their dreams as meaningful (King & DeCicco, 2009; Morewedge & Norton, 2009), the amount of meaning and significance people ascribe to their dreams may depend on several major factors. Gender differences appear to play a role in the frequency of dream recall and overall interest in dreams, with women overrepresented in both areas (Schredl, 2010). Even when controlling for physical factors related to sleep quality (e.g., tiredness, nocturnal awakening) as well as emotional variables, women’s dream recall surpassed that of men (Schredl, 2000). However, Schredl’s 2010 re-visitation of the subject of sleep quality and gender differences in dreams found a moderate correlation between poorer sleep quality as represented by parasomnias including insomnia and frequent nocturnal awakenings and an increased dream recall, especially among women. Schredl, Schenck, Görtelmeyer, and Heuser (1998) noted that as women are more likely to self-report sleep difficulties, this may be a contributing factor in their increased dream recall ability. Furthermore, the nonphysical factor of dream interest was found to predict increased dream recall (Schredl, 2010). Nevertheless, it is difficult to pinpoint whether increased dream recall

results from greater interest in dreams or whether the ability to easily and frequently recall dreams (possibly due to poorer sleep quality) is the factor that sparks an interest in dreams (Schredl, 2010).

Further differences in the dreams of men and women have been noted by Blume-Marcovici (2010). Men tend to dream more frequently about other men, whereas women tend to dream about men and women equally. Blume-Marcovici (2010) posited that men's preoccupation with male dream-characters results from males' increased likelihood to experience conflict with other men in their waking life. Similarly, aggressive dream content, especially physical aggression, is reported with greater frequency by men than women. This finding held true for participants who self-identified as males, regardless of biological gender. As with the findings on the genders of dream-characters, dream aggression is thought to be tied to experiences in waking life (Blume-Marcovici, 2010).

Several studies have found ties between unpleasant dream emotions and content and poorer outcomes in waking life. Zadra and Donderi (2000) examined the relationship between nightmares, bad dreams, and well-being. Nightmares were defined as dreams with unpleasant, generally frightening content that cause the dreamer to wake up as a direct result of the unpleasant emotions generated by the dream, whereas bad dreams were defined as unpleasant and often frightening dreams that did not cause the dreamer to wake up and were consequently recalled later. The participants in this study were asked to retroactively estimate the frequency with which they experienced nightmares over the past year. Participants reported a mean of 4.21 nightmares over the past year, with many participants indicating that they rarely or never experienced nightmares. When the

participants were asked to keep a dream log, however, 47% reported experiencing at least one nightmare while 81% reported experiencing one or more bad dreams. These figures, when prorated to cover one year, significantly exceeded the estimates for nightmare frequency based on retrospective estimates. When nightmare and bad dream frequency were correlated with measures of personal well-being, those who experienced frequent bad dreams experienced poorer outcomes on well-being outcomes, and the outcomes of those experiencing frequent nightmares were poorer still. Zadra and Donderi (2000) conceptualized well-being scores on a continuum, with sufferers of bad dreams representing low scores and nightmare sufferers representing very low scores. Similarly, Blagrove, Farmer, and Williams (2004) found links with emotionally distressing dreams and lower scores associated with certain aspects of well-being. The self-reported frequency of bad dreams was associated with anxiety, depression, neuroticism, and acute stress, but these outcomes were not associated with higher incidence of nightmares—that is, those dreams that produced wakefulness due to their general unpleasantness or frightening atmosphere (Blagrove, Farmer, & Williams, 2004). However, these negative outcomes were associated with nightmare distress, or the “trait-like” level of anxiety about potentially experiencing nightmares (Blagrove, Farmer, & Williams, 2004). This would seem to suggest that it is not necessarily nightmare frequency that is associated with negative outcomes, but rather the anxiety produced and fed by the experience of having nightmares.

While the study of unpleasant dream emotions and subjective well-being is established in dream literature (Blagrove, Farmer, & Williams, 2004; Schredl, 2003; Zadra & Donderi, 2000), there is a dearth of research on positive dream emotions and

their association with measures of subjective well-being. A study by Gilchrist, Davidson, and Shakespeare-Finch (2007) examined the relationships among positive and negative personality traits, emotional states, and dream emotions and the types of dreams experienced. The researchers found mild to moderate correlations between certain personality factors and the emotional tenor of dream content. Traits such as optimism were negatively correlated with the experience of apprehension in dreams, while satisfaction with life was positively correlated with dream contentment and negatively correlated with apprehension and sadness in dreams (Gilchrist, Davidson, & Shakespeare-Finch, 2007). Stronger correlations were present when waking emotions were compared to the emotions experienced in dreams over the study period. Both positive and negative waking emotions were significantly correlated with their corresponding dream emotions, indicating that both positive and negative emotions are associated with the content of dreams. Furthermore, the stronger correlations between waking emotions and dream content than personality traits and dream content would seem to indicate that the emotions experienced in dreams are more strongly related to changeable states than stable traits (Gilchrist, Davidson, & Shakespeare-Finch, 2007).

Studies also indicate that the ability to become absorbed in sensory experiences as well as a person's capacity for imagination and fantasy are correlated with the ability to recall dreams and dream content (Beaulieu-Prévost & Zadra, 2007). In a meta-analysis of dream research by Beaulieu-Prévost and Zadra (2007), factors such as estimates of dream frequency, attitudes toward dreams, nightmare frequency and psychopathology, boundary thickness (i.e., the level of division between concrete daily emotions and imagination and dream emotions), and absorption (i.e. the ability to become lost in imaginative fantasy)

were examined in their relationships to actual and retrospective dream recall. The researchers found that, while personality factors such as absorption were less associated with actual dream recall as measured by daily diary exercises, perceived recall was much higher in participants reporting higher levels of absorption. In other words, although participants scoring higher in absorption did not necessarily recall a much greater number of dreams than their counterparts scoring lower on measures of absorption, they estimated that they recalled higher numbers of dreams when asked retrospectively about their dreaming habits and reported a greater interest in dreams overall (Beaulieu-Prévost & Zadra, 2007). Furthermore, participants with high levels of absorption also report greater vividness in their dream recall (Beaulieu-Prévost & Zadra, 2007).

### **Present Study**

Although research into dreams, dream recall, and dream emotions is plentiful, comparatively few studies have delved into the possible relationship of these factors and subjective well-being. Furthermore, the link between dream emotions and waking emotions has been studied frequently, but usually in the context of negative dreams and nightmares. When investigating the link between waking states and dream emotions, research has suggested that both positive and negative dream emotions are more highly correlated with waking emotions than with personality traits (Gilchrist, Davidson, & Shakespeare-Finch, 2007). Nevertheless, traits such as optimism and satisfaction with life appeared to have a “protective effect” in preventing negative dream emotions and experiences such as apprehension and sadness (Gilchrist, Davidson, & Shakespeare-Finch, 2007). It is therefore reasonable to assume that those who frequently experience positive dreams are more likely to have higher measured well-being. Because many

people believe their dreams provide meaningful insights into their lives, it is also reasonable to assume that those who recall their dreams more often will increase their sense of meaning in life.

The purpose of this study was to examine the relationships among dream recall and perceived dream emotions and experiences on self-reported subjective well-being. Although research into nightmares and unpleasant dreams has a consistent presence in the literature (e.g., Blagrove, Farmer, & Williams, 2004; Zadra & Donderi, 2000), little attention has been paid to positive dream emotions and experiences. One aim of this study was to identify individuals who self-report positive dream emotions and determine whether these individuals tend to have a positive view of their waking lives as measured by instruments that quantify subjective well-being. Preliminary studies into this construct indicate the possibility that positive dream emotions may correlate with aspects of subjective well-being such as life satisfaction (Gilchrist, Davidson, & Shakespeare-Finch, 2007). However, in order to fully establish this connection, more in-depth and generalized research was necessary.

The concept of mental boundaries—that is, an individual's tendency to favor concrete experiences, emotions, and states over the abstract, unknown, and dreamlike—has been tied to both personality traits and personal characteristics such as dream recall. Although increased dream recall is correlated with thinner boundaries among mental and emotional states (Hartmann, Harrison, & Zboroski, 2001), it is unclear whether individuals with thin boundaries are more likely to experience increased personal satisfaction when compared to those with thick boundaries. While those of the thin boundary “type” have been found to be generally open to new experience (Hartmann,

Harrison, & Zboroski, 2001), few other general assertions have been made about these individuals in regard to personality or other overarching traits. For this reason, tying dream recall to subjective well-being could offer insights into the characteristics of those who frequently remember their dreams, and by extension, those who identify as having thin boundaries.

In this study, participants were asked to indicate whether they remembered their dreams and, if so, whether they experience primarily positive or negative emotions in their dreams. Participants were assessed on their mental boundaries as well as their subjective well-being as measured by scales of satisfaction with life, happiness, meaning in life, and affective experience. The goal of this study, therefore, was to determine the relationship between dream recall and dream emotions and boundaries with subjective well-being.

### **Hypotheses**

1. It is hypothesized that participants who both remember their dreams and report positive associations with their dreams will show higher scores in measures of subjective well-being than individuals who do not remember their dreams and individuals who associate negative emotions with their dreams.

2. It is hypothesized that participants who report that they do not remember their dreams will show higher scores in measures of subjective well-being than participants that specifically report they experience negative dreams.

3. It is hypothesized that women will have a higher frequency of dream recall than men.

4. It is hypothesized that participants with thinner boundaries will have more dream recall than participants with thicker boundaries.

5. It is hypothesized that participants with thinner boundaries will have more capacity for fantasy and imagination than participants with thicker boundaries

6. It is hypothesized that participants with thinner boundaries will have higher scores on all measures of well-being than participants with thicker boundaries.



## CHAPTER II: METHOD

### Participants

Participants consisted of 101 adults who completed the questionnaire. There were 39 males and 62 females who participated in the survey. There were 77 participants who identified themselves as “White,” 13 participants who identified themselves as “Hispanic” or “Latino,” 21 participants who identified themselves as “Black” or “African American,” and one participant who identified him- or herself as “Biracial.” There was one participant who did not identify his or her ethnicity. The mean age of the participants was 29.39 years with a standard deviation of 11.01 years. The age range of the participants was 18 to 65 years. Three participants identified their education level as “high school diploma;” forty-nine participants identified their education level as “some college;” seventeen participants identified their education level as “associate’s degree;” nineteen participants identified their education level as “bachelor’s degree;” three participants identified their education level as “some graduate school,” and 15 participants who identified their education level as “graduate or professional degree.”

### Measures

#### Satisfaction with Life Questionnaire (SWL)

The Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985) measures the concept of life satisfaction as a whole rather than as the sum of specific domains. The scale consists of five items scored on a seven-point Likert scale with 1 = strongly agree to 7 = strongly disagree. This scale focuses on satisfaction with past and current life events. Sample items include, “In most ways my life is ideal.” The Satisfaction with Life Scale was first administered to 176 undergraduate students ( $M =$

23.50,  $SD = 6.43$ ). Test-retest reliability was reported as .82 for two weeks and two months between testing (Diener, Emmons, Larson, & Griffin, 1985). Additionally, it has been shown to be a valid measure of life satisfaction when compared to other measures of the same construct (Diener, Emmons, Larson, & Griffin, 1985). Internal consistency measures were not reported.

### **Subjective Happiness Scale (SHS)**

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) is a 4-item scale measuring the concept of global happiness. The first two questions require the participant to rate his or her overall happiness and his or her level of happiness in relation to peers. The other two items present the participant with a general description of a person who could be characterized as happy and a person who could be characterized as unhappy, and the participants are asked to rate how well each description describes their own level of personal happiness. The scale was validated in a total of 14 studies utilizing participants from the United States as well as participants from Moscow, Russia. In total, the original sample was composed of 2,732 participants. Total sample means and standard deviations were not reported. The scale's reliability was tested using Cronbach's alpha, which ranged from .79 to .94, indicating good to excellent internal consistency (Lyubomirsky & Lepper, 1999). Furthermore, the test was found to be comparable across age, language, occupation, and culture (Lyubomirsky & Lepper, 1999). The scale's stability over time was measured using longitudinal data from five samples of participants. The test was re-administered over time periods ranging from three weeks to one year, and the test-retest reliability was found to range between .55 and .90 (Lyubomirsky & Lepper, 1999).

The developers of the Subjective Happiness Scale tested the scale's convergent validity by comparing it to other measures of happiness and well-being in four participant samples. The correlations between the Subjective Happiness Scale and the other measures ranged from .52 to .72 (Lyubomirsky & Lepper, 1999). Additionally, the researchers performed tests to measure the scale's discriminant validity by comparing it to factors that should not be related to happiness, such as college GPA, stressful life events, and math and verbal skills. Only one of the areas was weakly related to happiness (verbal skills), but the effect size was small ( $r = .14$ ), suggesting adequate discriminant validity.

### **Meaning in Life Questionnaire (MLQ)**

The Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006) is a 10-item scale that assesses two dimensions of overall meaning. The first dimension is the Presence of Meaning subscale, which measures respondents' impressions of their lives' fullness of meaning. The second dimension is the Search for Meaning subscale, which measures respondents' motivation to find meaning in life or to further their understanding of life's meaning. All items are rated on a 7-point Likert scale ranging from "Absolutely True" to "Absolutely Untrue." The MLQ was originally studied on a population of 151 undergraduate students. The Presence subscale had  $M = 23.5$ ,  $SD = 6.6$ , while the Searching subscale had  $M = 23.1$ ,  $SD = 6.6$ . The MLQ has good reliability and internal consistency, with coefficient alphas ranging from the low to high .80s for the Presence subscale and alphas ranging from the mid .80s to the low .90s for the Search subscale.

The MLQ's validity was measured by comparing it to similar constructs in other measures. The Presence subscale was found to be correlated to factors including well-

being, intrinsic religiosity, extraversion and agreeableness, and was found to be negatively correlated to anxiety and depression. The search subscale was found to be correlated with religious quest, rumination, past-negative and present-fatalistic time perspectives, negative affect, depression, and neuroticism as well as altruistic and spiritual behaviors as assessed through daily diary activities.

### **The International Positive and Negative Affect Schedule (I-PANAS)**

The International Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) is a 20-item scale composed of two subscales, one measuring positive affect and one measuring negative affect. The items are rated on a 5- point Likert scale with answers ranging from “1=very slightly to not at all” to “5=extremely.” The scale has been used by its authors to measure affect over time periods ranging from “at this moment” to “generally (on average).” For “at this moment” ratings (the version used in the present study), participants consisted of 660 undergraduates. For the Positive subscale,  $M = 29.7$ ,  $SD = 7.9$ ; for the Negative subscale,  $M = 14.8$ ,  $SD = 5.4$ . Internal consistency reliabilities ranged from .73 to .78 for Positive Affect and .72 to .76 for Negative Affect.

### **Short Index of Self-Actualization (SISA)**

Self-actualization was measured with the Short Index of Self-actualization (SISA; Jones & Crandall, 1986). The SISA is a 15-item measure of self-actualization that uses a 6-point Likert scale. Jones and Crandall developed the scale in order to provide a shorter alternative to other measures of self-actualization that were quite time consuming to complete. Items on the SISA were modified versions of items on the Personal Orientation Inventory (Shostrom, 1964), which at the time was the most widely used measure of self-

actualization. Study participants consisted of 340 male and female undergraduate students. Described statistics were reported as  $M = 45.6$ ,  $SD = 5.57$ . Alpha coefficients between .63 and .68 have been reported for the total score on SISA (Wood et al, 2008). The somewhat low reliabilities may be due to the presence of 2 factors on the SISA (Richard & Jex, 1991). The validity of the SISA has been supported by significant correlations in the expected direction with optimism, self-esteem, trait anxiety, death anxiety, depression, boredom proneness, and creativity (Crandall & Jones, 1991; Jones & Crandall, 1986; Richard & Jex, 1991).

### **Capacity for Fantasy and Imagination**

The capacity for fantasy and imagination was measured with the Fantasy facet scale from the Openness to Experience Scale of the NEO-PI-R (Costa & McCrae, 1992). Costa and McCrae's 1992 sample consisted of 797 males and 353 females from a broad sample of the working population of the United Kingdom. Descriptive statistics were provided by gender, with men displaying  $M = 17.2$ ,  $SD = 4.7$  and females displaying  $M = 17.8$ ,  $SD = 4.7$ . Costa and McCrae (1992) found that the Fantasy facet scale had Cronbach's alpha coefficients of .77 for men and .79 for women, a test-retest reliability of .71, and it was significantly correlated with the Tellegen Absorption scale (Tellegen & Atkinson, 1974).

### **Hartmann Boundary Questionnaire, Short Form (BQ-SF)**

The short form of the Hartmann Boundary Questionnaire was developed as an alternative to the time-consuming nature of the full-length questionnaire (Rawlings, 2002). The questionnaire consists of 46 items; of these items, only 40 contribute to the total score. The shortened version was developed by using Maximum Likelihood factor

analysis of 300 responses from undergraduates to the full 145-item scale (Rawlings, 2002). For the total sample,  $M = 78.5$ ,  $SD = 15.4$ . Individual subscales varied in reliability from .65 to .80, while overall scale reliability was measured to be .74. The scale showed strong correlations with the full-length Boundary Questionnaire (.88) as well as to a rationally-derived, face-valid short version (.77) (Rawlings, 2002).

### **Dream Recall Questionnaire**

First, participants reported whether they typically remembered their dreams in a yes/no format. Second, participants reported on the extent of their dream recall by indicating the approximate percentage of dream recall on a scale of 0 to 100. Participants then rated the extent of their dream recall with the following questions: (1.) "I do not have dreams", (2.) "I know that I dream, but I never remember them", (3.) "I remember my dreams when I wake up, but I forget them shortly after getting up from bed", (4.) "I remember my dreams occasionally", (5.) "I frequently remember my dreams." Finally, participants indicated if their dream experiences are primarily positive or negative as measured by the following 6-point Likert scale: (1.) "Primarily negative", (2.) "Somewhat negative", (3.) "Slightly Negative", (4.) "Slightly Positive", (5.) "Somewhat Positive", (6) "Primarily Positive."

### **Demographics Questionnaire**

In addition to the above measures, participants completed a short demographics questionnaire during the pretest battery comprised of the following questions: (a) What is your gender? (b) How old are you? (c) What is your race? and (d) What is your level of education?

**Procedure**

This study consisted of data collected from two populations. The first population consisted of undergraduate students at Middle Tennessee State University who took the survey to receive course credit. The second group was comprised of participants recruited from the community through online announcements. Both groups were redirected to the Qualtrics website to complete the questionnaires.

The participants were provided with an online consent statement prior to the completion of the questionnaire, and they were alerted of their right to discontinue the survey at any time during the procedure. The participants then completed the demographics questionnaire indicating their gender, age, race, and level of education. Participants then completed the dream recall questions, the questionnaire on mental boundaries, the five measures of well-being (i.e. The Satisfaction with Life Scale, The Subjective Happiness Scale, The Meaning in Life Questionnaire, The Positive and Negative Affect Schedule, and the Short Index of Self-actualization), the Imagination facet scale from the Openness to Experience Scale, and the Hartmann Boundary Questionnaire (Short Form). The survey components were presented in the fixed order listed above.

## CHAPTER III: RESULTS

### Analysis of Hypotheses

This study used multiple measures of subjective well-being as well as demographics information, measures of capacity for fantasy and imagination, and overall examination of thinness or thickness of mental boundaries in the sample population. Descriptive statistics for these measures may be viewed in Table 1. Due to low reliability for the total score on the Meaning in Life Questionnaire (MLQ), as measured by Cronbach's alpha, its two major factor scores (i.e. Presence of Meaning and Searching for Meaning) were also used in analyses. Internal consistencies for the factor scores were adequate.

Statistical analyses were performed to determine the presence of statistically significant correlations among individual variables. These correlations may be viewed in Table 2. An alpha of .05 was used for all analyses.

The first hypotheses stated that individuals who remember their dreams would report higher subjective feelings of happiness and well-being than individuals who did not remember their dreams. Similarly, individuals reporting primarily positive associations with their dreams were hypothesized to report greater subjective well-being. Dream memory was measured with three scales: a dichotomous question (i.e., "yes" or "no"), a scale similar to Cantril's self-anchoring ladder that asked respondents "how often" they remembered their dreams using a 0-100 scale, and a question that asked participants to indicate the "extent" of their dream recall during the day using a 6-point Likert scale. The dichotomous memory question was not significantly correlated with any well-being variables. Similarly, the "how often" memory question was not significantly



correlated with any measures of subjective well-being. The “extent” of recall question, however, was significantly negatively correlated with overall scores on the Meaning in Life Questionnaire ( $r = -0.25, p = .036$ ) as well as scores on the Searching factor of the Meaning in Life Questionnaire ( $r = -0.27, p = .021$ ). These associations indicated that participants who reported remembering their dreams more infrequently had higher scores on the Meaning in Life Questionnaire and the Searching factor of the MLQ.

Emotional content of dreams was measured as the relative positivity or negativity of dreams by using a six-point Likert scale ranging from primarily negative dream associations to primarily positive dream associations. Although no statistically significant correlations were found between this question and the various subjective well-being measures, near-significant positive associations were found between dream emotions and reported subjective happiness ( $r = 0.22, p = .067$ ). This suggested that participants who reported more positive dream emotions overall may experience higher perceived happiness. It is important to note, however, that this correlation coefficient is less robust than a statistically significant correlation.

The second hypothesis stated that participants who reported that they did not remember their dreams would report higher subjective well-being than participants that specifically reported negative dream emotions. This hypothesis was tested with a series of forward regressions with subjective well-being measures as the dependent variables and the dichotomous recall question and a recoded emotional content question as independent variables. The emotional content question was recoded into dichotomous “negative” and “positive” categories of emotion. Thirty-five participants (32.1% of respondents) indicated that they did not typically remember their dreams. Forty-nine

Table 1

*Descriptive Statistics for All Variables*

| Variable                     | M     | SD    | Skew  | Cronbach's $\alpha$ |
|------------------------------|-------|-------|-------|---------------------|
| Age                          | 29.39 | 11.01 | 1.33  |                     |
| Dream Memory (Y/N)           | 1.35  | 0.48  | 0.66  |                     |
| How Often                    | 42.27 | 24.10 | 0.21  |                     |
| Recall Extent                | 3.82  | 0.89  | -0.52 |                     |
| Emotional Content            | 3.57  | 1.22  | -0.12 |                     |
| Boundary Questionnaire       | 77.05 | 11.30 | 0.92  | 0.76                |
| Satisfaction with Life Scale | 24.52 | 5.66  | -0.49 | 0.85                |
| B5 Fantasy Scale*            | 19.56 | 5.23  | -0.30 | 0.81                |
| PANAS Positive Affect        | 30.43 | 8.78  | 0.05  | 0.91                |
| PANAS Negative Affect        | 44.20 | 6.36  | -1.60 | 0.89                |
| Subjective Happiness Scale   | 19.20 | 4.66  | -0.10 | 0.82                |
| Meaning in Life              | 47.84 | 7.55  | 0.59  | 0.59                |
| MLQ Presence Factor          | 24.31 | 6.01  | -0.31 | 0.88                |
| MLQ Searching Factor         | 23.66 | 7.87  | -0.66 | 0.92                |
| Self-Actualization Scale     | 59.13 | 7.16  | -0.35 | 0.59                |

*N = 73, \*B5 refers to the Big Five Personality Inventory*

Table 2

*Correlations Among All Variables*

| Variable                     | Zero-Order Correlations |             |       |              |              |       |              |              |              |              |              |              |              |              |              |             |
|------------------------------|-------------------------|-------------|-------|--------------|--------------|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
|                              | 2                       | 3           | 4     | 5            | 6            | 7     | 8            | 9            | 10           | 11           | 12           | 13           | 14           | 15           | 16           | 17          |
| 1. Gender                    | 0.12                    | <b>0.25</b> | -0.21 | <b>0.31</b>  | <b>0.30</b>  | -0.18 | 0.23         | -0.09        | 0.07         | 0.09         | -0.14        | 0.10         | 0.12         | 0.14         | 0.00         | <b>0.28</b> |
| 2. Age                       |                         | <b>0.41</b> | 0.15  | -0.11        | 0.04         | 0.02  | <b>-0.35</b> | -0.03        | <b>-0.42</b> | 0.17         | 0.11         | 0.19         | <b>-0.33</b> | 0.22         | <b>-0.46</b> | <b>0.27</b> |
| 3. Education                 |                         |             | -0.03 | 0.14         | 0.09         | 0.02  | 0.05         | -0.03        | <b>-0.25</b> | -0.14        | 0.12         | 0.08         | -0.02        | 0.19         | -0.16        | 0.09        |
| 4. Remember (Y/N)            |                         |             |       | <b>-0.70</b> | <b>-0.42</b> | -0.01 | <b>-0.27</b> | -0.07        | -0.07        | -0.15        | 0.07         | -0.15        | -0.12        | -0.16        | 0.01         | -0.15       |
| 5. How Often                 |                         |             |       |              | <b>0.64</b>  | 0.01  | <b>0.49</b>  | -0.15        | 0.21         | -0.05        | -0.18        | 0.06         | 0.01         | -0.03        | 0.03         | 0.10        |
| 6. Extent of Recall          |                         |             |       |              |              | -0.07 | <b>0.30</b>  | -0.06        | 0.17         | -0.04        | -0.14        | 0.07         | <b>-0.25</b> | 0.06         | <b>-0.27</b> | 0.18        |
| 7. Emotional Content         |                         |             |       |              |              | 0.07  | 0.09         | -0.06        | 0.18         | 0.09         | 0.22         | -0.03        | 0.17         | -0.16        | 0.06         |             |
| 8. Boundary Questionnaire    |                         |             |       |              |              |       |              | <b>-0.23</b> | <b>0.46</b>  | <b>-0.25</b> | <b>-0.28</b> | <b>-0.27</b> | -0.07        | -0.11        | 0.03         | -0.09       |
| 9. Satisfaction with Life    |                         |             |       |              |              |       |              |              | <b>-0.23</b> | 0.20         | <b>0.41</b>  | <b>0.52</b>  | <b>0.35</b>  | <b>0.53</b>  | -0.79        | <b>0.26</b> |
| 10. B5 Fantasy               |                         |             |       |              |              |       |              |              |              | -0.22        | <b>-0.25</b> | <b>-0.33</b> | -0.15        | <b>-0.41</b> | 0.17         | -0.15       |
| 11. Positive Affect          |                         |             |       |              |              |       |              |              |              |              | 0.13         | <b>0.40</b>  | 0.19         | <b>0.38</b>  | -0.11        | <b>0.29</b> |
| 12. Negative Affect          |                         |             |       |              |              |       |              |              |              |              |              | <b>0.55</b>  | -0.03        | <b>0.31</b>  | <b>-0.26</b> | <b>0.30</b> |
| 13. Subjective Happiness     |                         |             |       |              |              |       |              |              |              |              |              |              | 0.09         | <b>0.53</b>  | <b>-0.32</b> | <b>0.29</b> |
| 14. Meaning in Life          |                         |             |       |              |              |       |              |              |              |              |              |              |              | <b>0.28</b>  | <b>0.70</b>  | 0.01        |
| 15. MLQ Presence Factor      |                         |             |       |              |              |       |              |              |              |              |              |              |              |              | <b>-0.50</b> | <b>0.51</b> |
| 16. MLQ Searching Factor     |                         |             |       |              |              |       |              |              |              |              |              |              |              |              |              | <b>0.37</b> |
| 17. Self-Actualization Scale |                         |             |       |              |              |       |              |              |              |              |              |              |              |              |              |             |

Note: Correlations in bold are significant at the .05 level.

participants (49.0% of respondents) indicated they typically had negative content to their dreams. Lower self-reported positive affect was associated with not remembering dreams  $t(1,89) = -2.14, p < .04$ ), but not the emotional content of dreams. Lower self-reported presence of meaning was associated with not remembering dreams  $t(1,89) = -2.14, p < .04$ ), but not the emotional content of dreams. No other regressions were significant. These results suggested that lower subjective well-being tended to be associated with low dream recall.

Hypothesis three stated that women would report a higher rate of dream recall than men. Gender was positively associated with “how often” respondents remembered their dreams ( $r = 0.31, p = .009$ ) and the “extent” of dream recall during the day ( $r = 0.30, p = .011$ ). Gender approached, but did not reach, significance when compared to the dichotomous dream question ( $r = -0.21, p = .074$ ), suggesting that correlations were not as robust when comparing gender to “yes/no” reported dream recall. Female participants reported more frequent dream recall as well as a great extent of dream recall.

Hypothesis four stated that participants who reported thinner mental boundaries would also report increased dream recall. This hypothesis was tested by comparing responses on the three dream recall questions with overall scores on the Hartmann Boundary Questionnaire, Short Form. Higher scores on the Boundary Questionnaire are associated with thinner boundaries, therefore, positive correlations were predicted to occur with the “how often” and “extent” dream recall questions. The dichotomous dream recall question showed a significant negative correlation with mental boundary ( $r = -0.27, p = .021$ ), indicating that participants who answered “yes” to the dichotomous dream recall question were more likely to report thinner mental boundaries. Likewise,

frequency of dream recall (“how often”) was positively correlated with thinner mental boundaries ( $r = 0.49, p < .001$ ), and “extent” of dream recall was also positively associated with thinner mental boundaries ( $r = 0.30, p = .009$ ). These results indicated that for all three self-reported recall questions, higher reported dream recall was associated with thinner mental boundaries.

The fifth hypothesis stated that participants with thinner mental boundaries would report a higher capacity for fantasy and imagination than participants who self-reported thicker boundaries. This hypothesis was tested by comparing overall scores on the Hartmann Boundary Questionnaire, Short Form with overall scores on the Capacity for Fantasy and Imagination subscale from the Big Five Personality Inventory. Overall boundary scores were significantly positively correlated with scores on the Fantasy and Imagination subscale ( $r = 0.46, p < .001$ ). This association indicated that participants who reported thinner mental boundaries also tended to self-report an enhanced capacity for fantasy and imagination.

The final hypothesis stated that participants with thinner mental boundaries would report higher overall subjective well-being than participants with thicker self-reported boundaries. Scores on the boundary questionnaire were significantly correlated with several major aspects of subjective well-being. Significant negative associations were found between thinness of boundaries and Satisfaction with Life ( $r = -0.23, p = .048$ ), self-reported positive affect ( $r = -0.25, p = .031$ ), lack of negative affect ( $r = -0.28, p = .018$ ), and subjective happiness ( $r = -0.27, p = .023$ ). Therefore, the complete opposite of the hypothesized outcome occurred, with those participants reporting thinner mental boundaries scoring lower on measures of subjective well-being, while participants who

reported thicker boundaries reported higher subjective happiness, positive affect, lack of negative affect, and overall life satisfaction.

### Supplemental Analyses

In order to explore the data set, a series of multiple regression equations were calculated. In these equations the dependent variables were frequency of dream recall (“how often”), the extent of dream recall, and the emotional content of dreams. The independent variables were mental boundary, capacity for fantasy and imagination, and all of the subjective well-being variables. The equations were not significant for either the extent of dream recall or the emotional content of dreams. The equation for “how often” was significant  $F(3,74) = 10.26, p < .000, R = .54, \text{Adj. } R^2 = .27$ . Three independent variables were significant in the equation: mental boundary, subjective happiness, and negative affect (Table 3). This indicated that dreams were remembered more frequently by respondents who had thinner mental boundaries, were subjectively happier, and reported more negative emotionality. Therefore, respondents who reported thinner mental boundaries, greater happiness, and also more negative emotions tended to remember their dreams more often. This suggests that greater dream recall was related to thinner mental boundaries and greater emotionality, both positive and negative.

Table 3.

#### *Multiple Regression with “How Often You Remember Your Dreams”*

|                      | <i>B</i> | <i>SEb</i> | Beta ( $\beta$ ) | <i>t</i> | sig. |
|----------------------|----------|------------|------------------|----------|------|
| Mental Boundary      | 1.10     | 0.23       | 0.49             | 4.71     | 0.00 |
| Subjective Happiness | 1.97     | 0.66       | 0.36             | 2.99     | 0.00 |
| Negative Affect      | -0.99    | 0.46       | -0.25            | -2.13    | 0.04 |

Note:  $N = 69$ . *B* = regression coefficient. *SEb* = standard error of regression coefficient.

## CHAPTER IV: DISCUSSION

### Support for Hypotheses

Participants in this study reported a wide variety of estimated dream recall, ranging from complete lack of dreaming to near-constant recall. Dream recall itself has previously been tied to greater flexibility in mental boundaries (Hartmann, Harrison, & Zboroski, 2001; Hartmann, Rosen, & Rand, 1998) and gender (Schredl, 2010), variables that have been significantly correlated with each other in previous studies (Hartmann, Harrison, & Zboroski, 2001). In this study, multiple methods were used to estimate dream recall, from the more objective assignment of percentage points to dream recall to more general categories such as “I remember my dreams occasionally.” Significant associations only appeared with the more general scales, perhaps because the forced-choice aspect of the question made participants consign themselves to a broader category. Additionally, participants were able to acknowledge more subtle “shades” of dream recall, from the vague recollection that dreams occurred (“I know that I have dreams, but I never remember them”) to confident assertions of “frequent” dream recall. This more nuanced variable was found to be tied to the subjective assessment of meaning in one’s life, and more specifically to the act of searching for life’s meaning. The negative correlation between the two variables suggests that those who remember their dreams more frequently report that they are less likely to be actively seeking meaning in their daily lives.

The Meaning in Life Questionnaire (MLQ) is comprised of two distinct, and interestingly, opposed factors. Those who report high “presence” of meaning report less concern with searching for meaning in daily activities. In other words, those who feel

their lives to be meaningful already feel little need to continue seeking meaningful experiences. Searching for meaning was negatively correlated with subjective happiness, suggesting that those who have not yet found their lives' purposes may feel anxiety or other negative emotions surrounding this search. Participants who report more presence of meaning are perhaps less likely to be searching for meaning because they already find their lives to be meaningful and full of purpose. If, by extension, those who frequently recall their dreams are less likely to be searching for their life's meaning (and hence, have more "presence" of meaning), one might extrapolate that the frequent recall group might also experience more subjective happiness. However, this particular conclusion is not supported by the data in this study. Participants who frequently recalled their dreams were no more likely to report any symptoms of increased well-being when compared to their infrequently dreaming counterparts.

Dream emotionality, whether predominantly positive or negative, was not significantly correlated with any major variable. Emotional content approached, but did not reach, statistical significance in some areas. Positive dream emotions were linked at  $r = 0.22$  ( $p = .067$ ) with subjective happiness. Other less robust correlations occurred between positive dream emotions and current positive affect ( $r = 0.18$ ,  $p = .139$ ), gender ( $r = 0.12$ ,  $p = .127$ ), and presence of meaning in life ( $r = 0.17$ ,  $p = .149$ ). This suggests a possible connection between waking states (personal happiness, presence of meaning) and traits (positive affect). Though these connections make sense logically, as a person who has pleasant dreams might be expected to be a happy person in general, it is, of course, important to note that, in the absence of statistical significance, these connections are less robust.



Gender was found to be significantly correlated with dream recall and self-actualization. Previous studies have linked gender to increased recall (Schredl, 2010) as well as thinner mental boundaries (Hartmann, Harrison, & Zboroski, 2001). Boundary thinness reached near significant levels for gender ( $p = .056$ ), suggesting a possible, though statistically non-significant connection between these two variables in this sample. Previous research suggests that women are more likely to report higher overall interest in their dreams, which may account for their increased recall through rehearsal upon awakening or other strategies that may increase the likelihood of recall. An interesting finding linked gender to increased self-actualization, which includes traits such as feeling unashamed or in touch with personal emotions, increased sense of self and autonomy, altruistic urges, and the ability to trust oneself and others. Self-actualization was also significantly correlated with increased age of participants, although age and gender were not correlated, limiting the possibility that the sample included too many older female participants, thereby confounding the data. Although it is logical that confidence, knowledge of self, and familiarity with personal emotions would be a skill set acquired with age, this common finding flouts the more stereotypical view that these qualities are more often present in young people. Nevertheless, this finding continues to occur in literature (e.g., Lyubomirsky, Sheldon, & Schkade, 2005), suggesting that acquired experience may be essential to personal happiness, self-awareness, and life satisfaction.

Boundary thickness or thinness was also significantly correlated with age. Specifically, older individuals were more likely to identify as having thicker boundaries, a trait associated with need for order, more rigid thinking patterns, disassociation with

fantasy and imagination, and conscientiousness. Although boundary thickness has not been previously associated with subjective well-being in psychological literature, the thicker boundary profile bears some resemblance to the concept of traditionalism, which has sometimes been linked with increased subjective well-being (Lykken & Tellegen, 1996).

Thinner boundaries, while not particularly associated with increased well-being, are associated with increased dream recall as well as increased capacity for fantasy and imagination. Because the Hartmann questionnaire has a factor dealing specifically with dreams, imagination, and dissociative states, it is not surprising that this facet of personality is associated with imagination, fantasy, and self-reported dream recall. The Hartmann questionnaire also delves into the depth of dreams and dream-like states, covering vividness of dreams and even the tendency to confuse dreams and fantasy with reality. This finding would support the notions suggested by King & DeCicco (2009) and Morewedge & Norton (2009) that increased interest in dreams may lead to greater recall. However, it is difficult to determine whether increased recall influences interest in dreams or vice versa. Overlap between the two, with greater investment in dreams due to increased recall and greater recall spurring dream interest, remains an interesting puzzle and possible feedback loop.

Though imagination, typically perceived as a trait related to creativity, intelligence, and whimsy, has positive associations for many, it may be fallacious to associate fantasy with overall well-being. Indeed, in this study fantasy was associated with increased negative affect, lower subjective happiness, and less presence of meaning. This finding could suggest that people who are inclined to become absorbed in fantasy

may be using imagination and daydreaming to compensate for a perception that their daily lives lack fulfillment. Participants were more likely to report current feelings of negative affect, such as sadness, shame, or nervousness if they also endorsed an increased capacity for fantasy. Capacity for fantasy and imagination has been found to be significantly correlated to the very similar construct of absorption, a trait also significantly associated with greater perceived dream recall (Tellegen & Atkinson, 1974).

### **Limitations**

The current study suffered from several limitations. The small sample size ( $N = 101$ ) was compounded by many participants' tendencies to skip questions frequently, resulting in an even smaller sample size for the case of list-wise comparisons ( $N = 73$ ). Though the sample is racially similar to the general population, there was a gender disparity resulting in nearly twice as many female participants as male participants. Because the sample consisted of many female college students, the sample may have lacked the diversity found in the general population.

Another limitation that was present in this study was reliance on retroactive reports of dream recall and dream emotions. As shown by Zadra and Donderi (2000), participants tend to underreport both dream frequency and presence of bad dreams or nightmares when asked to remember their dreams retroactively. It could be possible that this sample provides an underrepresentation of true dream recall due to the necessity of retroactive self-reporting.

### **Directions for Future Research**

To overcome the potential problem of dream underreporting, it may be beneficial to study the relationships between dreams and subjective well-being while asking

participants to complete a dream diary. Keeping a real-time record of dreams may allow for more dream data to interpret as well as more accurate readings on actual dream frequency. Keeping a dream diary may also encourage increased introspection and interest in dreams among participants. Similarly, it may be beneficial to specifically study perceived dream meaningfulness as it compares to actual dream recall. Participants who tend to report increased perceptions of meaningfulness surrounding their dreams may provide increased recall as well as interest in a more in-depth large scale study or in detailed case studies of individual dream perceptions.

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## **APPENDICES**

## APPENDIX A

### Demographics/Dream Questionnaire

Thank you for participating in this survey. Before you begin the survey, you will be asked to complete a series of demographics questions and questions about your dream habits. The next portion of the survey will contain questions based on your current level of happiness, well-being, and satisfaction. Please answer each question to the best of your ability.

**1. What is your gender?**

Male    Female    Prefer not to Answer

**2. What is your age?** (Participant provides age in free response box)

**3. What is your race?**

White    Black/African American    Asian    Native American  
Alaskan Native/Pacific Islander    Hispanic/Latino ethnicity    Other (Please Specify)

**4. What is your level of education?**

Some high school    High school diploma    Some college    Bachelor's Degree  
Some Graduate School    Graduate or Professional Degree

**5. Do you typically remember your dreams?**

Yes    No

**6. Please indicate how often you remember your dreams, with 0 being never and 100 being always.** (Sliding scale response).

**6. Please rate the extent of your dream recall.**

I do not have dreams

I know that I dream, but I never remember them

I remember my dreams when I wake up, but I forget them shortly after getting up from bed

I remember my dreams occasionally

I frequently remember my dreams

**6. Please rate the emotional content of your dreams.**

Primarily Negative    Somewhat Negative    Slightly Negative

Slightly Positive    Somewhat Positive    Primarily Positive

**APPENDIX B****Satisfaction with Life Questionnaire**

DIRECTIONS: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

1 = Strongly Disagree

2 = Disagree

3 = Slightly Disagree

4 = Neither Agree or Disagree

5 = Slightly Agree

6 = Agree

7 = Strongly Agree

\_\_\_\_\_ 1. In most ways my life is close to my ideal.

\_\_\_\_\_ 2. The conditions of my life are excellent.

\_\_\_\_\_ 3. I am satisfied with life.

\_\_\_\_\_ 4. So far I have gotten the important things I want in life.

\_\_\_\_\_ 5. If I could live my life over, I would change almost nothing

## APPENDIX C

### Subjective Happiness Scale

*For each of the following statements and/or questions, please circle the point on the scale that you feel is most appropriate in describing you.*

1. In general, I consider myself:

|                         |   |   |   |                     |   |   |
|-------------------------|---|---|---|---------------------|---|---|
| 1                       | 2 | 3 | 4 | 5                   | 6 | 7 |
| not a very happy person |   |   |   | a very happy person |   |   |

2. Compared with most of my peers, I consider myself:

|            |   |   |   |            |   |   |
|------------|---|---|---|------------|---|---|
| 1          | 2 | 3 | 4 | 5          | 6 | 7 |
| less happy |   |   |   | more happy |   |   |

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

|            |   |   |   |              |   |   |
|------------|---|---|---|--------------|---|---|
| 1          | 2 | 3 | 4 | 5            | 6 | 7 |
| not at all |   |   |   | a great deal |   |   |

3. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

|            |   |   |   |              |   |   |
|------------|---|---|---|--------------|---|---|
| 1          | 2 | 3 | 4 | 5            | 6 | 7 |
| not at all |   |   |   | a great deal |   |   |

## APPENDIX D

### Meaning in Life Questionnaire

Please take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

Absolutely Untrue=1 Mostly Untrue=2 Somewhat Untrue=3 Can't Say True or False=4 Somewhat True=5 Mostly True=6 Absolutely True=7

1. I understand my life's meaning.
2. I am looking for something that makes my life feel meaningful.
3. I am always looking to find my life's purpose.
4. My life has a clear sense of purpose.
5. I have a good sense of what makes my life meaningful.
6. I have discovered a satisfying life purpose.
7. I am always searching for something that makes my life feel significant.
8. I am seeking a purpose or mission for my life.
9. My life has no clear purpose.
10. I am searching for meaning in my life.



**APPENDIX E****I-PANAS**

Indicate the extent you have felt this way over the past week.

Very Slightly or Not at All=1 A Little=2 Moderately=3 Quite a Bit=4 Extremely=5

1. Interested
2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired
15. Nervous
16. Determined
17. Attentive
18. Jittery
19. Active
20. Afraid

**APPENDIX F**  
**Capacity for Fantasy and Imagination**

Please rate the extent that the following sentences apply to you.

- 1=Very Untrue
- 2=Somewhat Untrue
- 3=Neither True nor Untrue
- 4=Somewhat True
- 5=Very True

1. Sometimes I get lost in my daydreams.
2. Sometimes I have fantasies that are overwhelming.
3. Sometimes I find myself in a trance-like state without trying.
4. I feel like my imagination can run wild.
5. I am sometimes so preoccupied with my own thoughts that I don't realize others are trying to speak to me.
6. I sometimes have extremely vivid pictures in my head.

## APPENDIX G

### Short Index of Self-actualization

Please respond to each item below using the following rating scale.

|                     |            |                     |
|---------------------|------------|---------------------|
| 1=Strongly Agree    | 2=Agree    | 3=Somewhat Agree    |
| 4=Somewhat Disagree | 5=Disagree | 6=Strongly Disagree |

1. I do not feel ashamed of any of my emotions.
2. I feel I must do what others expect me to do.
3. I believe that people are essentially good and can be trusted.
4. It is always necessary that others approve of what I do.
5. I feel free to be angry at those I love.
6. I don't accept my own weaknesses.
7. I can like people without having to approve of them.
8. I avoid attempts to analyze and simplify complex domains.
9. It is better to be yourself than to be popular.
10. I have no mission in my life to which I feel especially dedicated.
11. I can express my feelings even when they may result in undesirable consequences.
12. I do not feel responsible to help anybody.
13. I am loved because I can give love.
14. I am bothered by fears of being inadequate.
15. I fear failure.

**APPENDIX H**  
**Hartmann Boundary Questionnaire, Short Form (BQ-SF)**

**Unusual Experiences (UE)**

1. In my daydreams, people kind of merge into one another or one person turns into another.
2. I wake from one dream into another.
3. I have “daymares.”
4. In my dreams, people sometimes merge into each other or become other people.
5. I have dreams, daydreams, or nightmares in which my body or someone else’s body is being stabbed, injured, or torn apart.
6. Things around me seem to change their size and shape.
7. Every time something frightening happens to me, I have nightmares or fantasies or flashbacks involving the frightening event.
8. I have often had the experience of different senses coming together. For example, I have felt that I could smell a color, or see a sound, or hear an odor.
9. My dreams are so vivid that even later I can’t tell them from waking reality.
10. My body sometimes seems to change its size and shape.
11. I have had the experience of someone calling me or speaking my name and not being sure whether it was really happening or I was imagining it.
12. I have had the experience of not knowing whether I was imagining something or it was actually happening.

**Need for Order (NFO)**

13. There is a place for everything and everything should be in its place.

14. I think children need strict discipline.
15. In an organization, everyone should have a definite place and a specific role.
16. A man is a man and a woman is a woman; it is very important to maintain that distinction.
17. I like stories that have a definite beginning, middle, and end.
18. I cannot imagine living with or marrying a person of another race.
19. I like clear, precise borders.
20. The movies and TV shows I like the best are the ones where there are good guys and bad guys and you always know who they are.
21. Good solid frames are very important for a picture or a painting.
22. Being dressed neatly and cleanly is very important.
23. I like houses where rooms have definite walls and each room has a definite function.
24. East is East and West is West, and never the twain shall meet. (Kipling).

**Trust (Tr)**

25. I am a very open person.
26. I trust people easily.
27. I am always at least a bit on my guard.
28. Sometimes I meet someone and trust him or her so completely that I can share just about everything about myself at the first meeting.
29. I expect other people to keep a certain distance.
30. I am careful about what I say to people until I get to know them really well.

**Perceived Competence (PC)**

31. I get to appointments right on time.

- 32. I keep my desk and worktable neat and well organized.
- 33. I am good at keeping accounts and keeping track of my money.
- 34. I have a clear and distinct sense of time.
- 35. I know exactly what parts of town are safe and what parts are unsafe.
- 36. I have a clear memory of my past. I could tell you pretty well what happened year by year.
- 37. I am a down-to-earth, no-nonsense kind of person.
- 38. I think I would be a good psychotherapist.
- 39. There are no sharp dividing lines between normal people, people with problems, and people who are considered psychotic or crazy.

**Childlikeness (Ch)**

- 40. I think a good teacher must remain in part a child.
- 41. A good parent has to be a bit of a child too.
- 42. I think an artist must in part remain a child.
- 43. A good teacher needs to help a child remain special.
- 44. Children and adults have a lot in common. They should give themselves a chance to be together without any strict roles.

**Sensitivity (Se)**

- 45. I am easily hurt.
- 46. I am a very sensitive person.

## APPENDIX I

### Informed Consent

Informed Consent  
Middle Tennessee State University

Project Title: Dream Recall and Subjective Well-Being

Purpose of Project: The purpose of this study is to investigate the relationships between dream emotions, waking emotions, and subjective well-being.

Procedures: Participation in this research study involves filling out a number of questionnaires. You will be asked to provide demographic information and to complete several surveys. These surveys should take approximately 20 minutes to complete.

Risks/Benefits: Very little risk to participants is expected to occur during this study. While the questions included in the battery are not considered to be particularly sensitive in nature, it is possible that some participants may be uncomfortable answering questions about their personal happiness or their dream experiences.

Confidentiality: All the information you provide in this survey is confidential. Your answers will be kept in a secure program on a password-protected computer. When this study is complete, responses will not be tied to individual test-takers.

Principal Investigator/ Contact Information: Courtney Crawford cpa2g@mtmail.mtsu.edu (615) 519-7367

Participating in this project is voluntary, and refusal to participate or withdrawing from participation at any time during the project will involve no penalty or loss of benefits to which you might otherwise be entitled. All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised, for example, your information may be shared with the Middle Tennessee State University Institutional Review Board. In the event of questions or difficulties of any kind during or following participation, you may contact the Principal Investigator as indicated above. For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

#### Consent

I have read the above information and my questions have been answered satisfactorily by project staff. I believe I understand the purpose, benefits, and risks of the study and give my informed and free consent to be a participant.

## APPENDIX J

### IRB Approval



4/1/2015

Investigator(s): Courtney Crawford, Bill Compton  
Department: Psychology  
Investigator(s) Email Address: cpa2g@mtmail.mtsu.edu; bill.compton@mtsu.edu

Protocol Title: Dream Recall and Subjective Well-Being

Protocol Number: #15-233

Dear Investigator(s),

Your study has been designated to be exempt. The exemption is pursuant to 45 CFR 46.101(b)(2) Educational Tests, Surveys, Interviews, or Observations.

We will contact you annually on the status of your project. If it is completed, we will close it out of our system. You do not need to complete a progress report and you will not need to complete a final report. It is important to note that your study is approved for the life of the project and does not have an expiration date.

The following changes must be reported to the Office of Compliance before they are initiated:

- Adding new subject population
- Adding a new investigator
- Adding new procedures (e.g., new survey; new questions to your survey)
- A change in funding source
- Any change that makes the study no longer eligible for exemption.

The following changes do not need to be reported to the Office of Compliance:

- Editorial or administrative revisions to the consent or other study documents
- Increasing or decreasing the number of subjects from your proposed population

If you encounter any serious unanticipated problems to participants, or if you have any questions as you conduct your research, please do not hesitate to contact us.

Sincerely,

Lauren K. Qualls, Graduate Assistant  
Office of Compliance  
615-494-8918

MTSU Compliance Office  
010A Sam Ingram Bldg.  
1301 E. Main St.  
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