Quantitatively Testing the DRAMMA Model of Leisure and Subjective Well-Being on College Students

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This dissertation titled

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Abstract

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Quantitatively Testing the DRAMMA Model of Leisure and Subjective Well-Being on College Students

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Engagement in leisure has a strong theoretical and empirical connection to happiness, however little research has focused on how leisure induces happiness. The theoretical DRAMMA model as proposed by Newman, Tay, & Diener (2014) attempts to link leisure and subjective well-being (SWB) via 5 psychological pathways and leisure satisfaction. This study quantitatively tested, with a sample size of 704 students, the DRAMMA model on college students at a large 4-year Midwestern residential institution. According to multiple regression analyses the 5 psychological mechanisms of detachment-recovery, autonomy, mastery, meaning, and affiliation accounted for 58% of the variance in leisure satisfaction and 12% of variance in SWB. In addition, linear regression found that leisure satisfaction accounted for approximately 10% of the variance in SWB. Path analysis was used to test the overall model strength and fit. The analysis indicated strong fit indices but suggested a few model modifications. Even though the modifications are considered exploratory they had strong theoretical support, thus additional parameters were added from affiliation and meaning directly to SWB. For the student population of this study affiliation and meaning are the two most important factors leading to leisure satisfaction and SWB. Areas for future research are also discussed.
Dedication

To my loving wife Sarah, your support and encouragement knows no bounds. To Abby and Carter, may you find and pursue your true passions in life. To my parents, for instilling in me the value of an education. I would not be here if it was not for your countless sacrifices.
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Chapter 1: Introduction

Introduction

Throughout history the desire to understand and pursue happiness has been a fundamental human drive (Oishi, Graham, Kesebir, & Galinha, 2013). The study of human happiness has been a concern of philosophers and scientists throughout history. Aristotle concluded that happiness is the only true end worth seeking and should be the highest goal in one’s life (Aristotle, trans. 2014).

The more recent focus on understanding human happiness has evolved out of the burgeoning field of Positive Psychology. The term positive psychology was first used by Maslow (1954) in his book Motivation and Personality, however he was often criticized for his lack of empirical data. The modern focus on positive psychology came about in Martin Seligman’s 1998 inauguration speech as president of the American Psychological Association, when he called on the field of psychology to concentrate on what makes life fulfilling and productive (Fowler & Seligman, 1999). Seligman felt that since World War II the field of psychology has focused too much on mental illness and needed to invest its collective energies in empirically studying what makes life worth living. This directive has led Seligman to be considered the founder of contemporary positive psychology.

The benefits of being happy, often operationalized in current research as subjective well-being (SWB), are numerous as it fosters sociability and social activity, altruism, liking of self and others, strong bodies and immune systems, success, more fulfilling marriages and friendships, greater involvement in one’s community, higher
incomes, and effective conflict resolution skills (Lyubomirsky, King, & Diener, 2005). Individuals who are unhappy exhibit negative behaviors such as general emotionality, anger, poor inhibition of impulse, guilt proneness, anxiety, psychosomatic concerns, and worry (Costa & McCrae, 1980). Considering there have been no documented negative aspects of being happy it seems logical that as a society we should strive to evoke happiness among all our citizens (Cummins, Lau, Mellor, & Stokes, 2009).

Researchers have spent an extensive amount of time trying to understand the foundation of happiness. Most researchers agree there are three primary variables that influence happiness: (a) Relevant life circumstances, (b) a genetically determined set-point for positive mood and happiness, (c) the extent to which people engage in happiness increasing strategies or behaviors (Lyubomirsky, Sheldon, & Schkade, 2005). Life circumstances account for 10 percent of the variance in SWB and comprised of factors such as age, education, income, employment, marriage, and religion. Individuals may experience small increases or decreases in happiness because of a change in their life circumstances but over time they adapt to their circumstance and return to their previous level of happiness, also known as a set-point (Lykken & Tellegen, 1996; Sheldon & Lyubomirsky, 2006). The genetic set-point is genetically determined and thought to be fixed and stable over one’s lifetime and accounts for 50 percent of the variance in an individuals SWB (Lyubomirsky, Sheldon, et al., 2005). Happiness increasing behaviors (HIB) account for 40 percent of the variance in SWB and offer the best opportunity for enhancing and maintaining increases in happiness. HIB are considered intentional activities people consciously choose to participate in, even if the choice has become
habitual, and requires a degree of effort to enact and does not happen by itself (Lyubomirsky, Sheldon, & et al., 2005).

Institutions of higher education are among the sectors of society that are focusing more attention on happiness in recent years (Cockell & McArthur-Blair, 2012; Mather & Hulme, 2013). The reasons for such a focus are numerous but ultimately pertain to helping develop healthy, productive, and thriving students (Mather & Hulme, 2013). In a review of literature on student success Kuh and his colleagues (2006) noted, “Among the many functions of postsecondary education in a knowledge-based economy is preparing students to live productive, satisfying, responsible, and economically self-sufficient lives” (p. 9), all of which are associated with SWB. The study is positioned to help individuals in higher education understand an additional mechanism to facilitate SWB in college students along with gain further understanding of how out of class experiences can affect students.

One of the driving factors of SWB is leisure, a happiness increasing behavior, as it is consistently ranked as one of the highest facilitators of happiness (Diener, Suh, Lucas, & Smith, 1999; Lyubomirsky, King, & et al, 2005). Leisure is considered one of life’s key domains along with health, finances, family, self, social group, and work (Diener et al., 1999; Kuykendall, Tay, & Ng, 2015). As such leisure’s influence on happiness is multifaceted as leisure provides opportunities for detachment and recovery from stress, including work related pressures, autonomy, mastery, meaning, and affiliation (DRAMMA) all of which influence ones leisure and life satisfaction (Kuykendall et al., 2015; Newman, Tay, & Diener, 2014). Further illustrating this point,
Wang and Wong (2014) wrote, “Leisure provides individuals an opportunity to receive relief from stress, to socialize with others, to examine personal values, and to fulfill goals” (p. 111). Kuykendall, Tay, and Ng’s (2015) meta-analysis showed a positive relationship between leisure engagement and SWB.

The type of leisure activity has been found to influence SWB. For example, active leisure was a stronger predictor of happiness than passive leisure (Tkach & Lyubomirsky, 2006). On the other hand, several studies on happiness increasing behaviors showed that passive leisure was negatively correlated with SWB (Henricksen & Stephens, 2013; Tkach & Lyubomirsky, 2006). Baily and Fernando (2012) when studying the impact of routine and project-based leisure on meaning and happiness concluded a significant relationship exists between routine leisure and SWB.

In the current study, I examined the relationship between happiness and leisure. The importance of happiness is clear as it benefits individuals but also clearly influences society and in particular higher education. Knowing that happiness is good for individuals and society alike coupled with leisure’s significant influence on happiness it would seem logical to understand how leisure influences happiness.

**Statement of the Problem**

The relationship between leisure and happiness needs to be examined further because leisure is one of the key life domains (Diener et al., 1999; Kuykendall et al., 2015) and is often cited as a fundamental component of SWB (Diener et al., 1999; Lyubomirsky, King, et al., 2005), however, the components of leisure that influence SWB have not been thoroughly explored (Newman et al., 2014). Furthermore enhancing
experiences in life domains is a path to promoting SWB (Kuykendall et al., 2015). Caunt et al. (2013) called for future research to explore “which activities are most beneficial, for whom, and under what conditions …” (p. 491). Caunt et al. (2013) state, “Future researchers might similarly develop a Happiness Activities Inventory of beneficial activities for the general population to increase their happiness” (p. 491). It is generally accepted among recreation professionals that individual participants may gain different outcomes from the same experience and more research is needed in this area (Sibthorp, 2003).

Future research needs to focus on the relationship between recreational and leisure activity characteristics and outcomes (Hattie, Marsh, Neill, & Richards, 1997; Sibthorp, 2003). Sibthorp (2003) called for recreation researchers to “… identify which specific program factors are the best predictors of targeted program outcomes…” (p. 100). In essence, research supports the positive role participating in leisure activities has on SWB, but few studies have looked at more than one variable at a time that leads to a targeted outcome. Furthermore, little is known about the psychological impact leisure experiences have on individuals (Tinsley & Eldredge, 1995). The fact few studies have focused on and empirically investigated the manner in which leisure activity participation facilitates SWB leaves a significant gap in the literature.

**Theoretical Framework**

The theoretical framework utilized in this study is based on Newman, Tay, and Diener’s (2014) DRAMMA model that links leisure to SWB through the five psychological mechanisms and leisure satisfaction. Newman and his colleagues built the
framework by reviewing 363 peer reviewed articles and book chapters that examined the link between SWB and leisure. The authors then looked for the publications that specifically referenced a framework and examined the underlying psychological processes, which formed the basis for the DRAMMA model. The psychological mechanisms: detachment-recovery, affiliation, mastery, meaning, and autonomy are based on prominent theories within SWB (Newman et al., 2014).

As illustrated in Figure 1, the DRAMMA model is a bottom-up theory of SWB, meaning the five psychological mechanisms promote leisure SWB that leads to global SWB. A bottom-up approach to global SWB is based on each key life domain influencing an individual’s SWB whereas a top-down approach is based on each key life domain being influenced by an individual’s global SWB (Diener, 1984; Kuykendall et al., 2015; Lyubomirsky, King, et al., 2005; Newman et al., 2014). Through their meta-analysis on leisure engagement and subjective well-being, Kuykendall et al. (2015) concluded, “Indeed, top-down and bottom-up processes appear to account for approximately equal amounts of variance (based on regression estimates) between leisure satisfaction and SWB over time” (p. 390). The foundation of the bottom up approach is built on the premise that there are basic and universal human needs and that if one can fulfill these needs then they will be happy (Diener et al., 1999). Thus, enhancing leisure experiences can improve SWB.

The DRAMMA framework is a model that was proposed in 2014 and one of the first overarching theoretical attempts to link leisure and SWB. Although various components of the model have been tested independently, which created the foundation
for DRAMMA, no study has tested the model, which is the purpose of this proposed study.

Figure 1. Graphical depiction of the DRAMMA model
Purpose of the Study

The purpose of this quantitative study was to test the DRAMMA theory of leisure and SWB by examining the effects of the five psychological mechanisms on leisure satisfaction and SWB on a university student population. In achieving the purpose of the study, the researcher met Sibthorp’s (2003) call to better understand what specific factors influence intended programmatic outcomes. In addition, the study furthered the understanding of how leisure activities facilitate happiness, which Caunt and his colleagues (2013) recognized as an important need in the field of happiness studies. Furthermore, a strong relationship between leisure and happiness has been established in the literature but the cause of that relationship has not been looked at in a holistic manner. By focusing on happiness as an outcome, the study benefited individuals, higher education, and as a result society by gaining an understanding of the role leisure, a key life domain, plays in facilitating happiness. With college students being the focus, through this research I provided a better understanding of the connection between leisure and happiness in preparing students to live productive and satisfying lives.

In order to achieve the purpose of the study, the DRAMMA model was tested by developing and administering a survey to full-time undergraduate university students at a large four-year public university in the Midwest. The survey prompted students to identify their favorite or most enjoyable leisure activity and answer questions about how that activity provides opportunities for detachment-recovery, autonomy, mastery, meaning, affiliation, leisure satisfaction, and SWB. Through the results, a better understanding of the relationship between leisure participation, leisure satisfaction, and
SWB was achieved. By testing the effects of the five psychological mechanisms in the DRAMMA model a greater understanding of the relationship between leisure participation and satisfaction was established. In addition, an understanding of the influence the five mechanisms have on SWB was gained.

**Significance of the Study**

The significance of the study to the fields of higher education, recreation and leisure studies, and positive psychology lies in gaining an understanding of how leisure participation influences SWB through the five psychological mechanisms as proposed in the DRAMMA model. The study was positioned to help individuals in higher education understand an additional mechanism to facilitate SWB in college students along with gain further understanding of how out of class experiences can affect students. The study can help recreation programmers understand the role specific psychological mechanisms play in reaching the targeted outcome of leisure satisfaction and SWB. In addition, the study expanded the understanding positive psychologist have of the relationship between leisure and SWB.

All three fields previously mentioned have recognized the need for connecting leisure and SWB, while emphasizing the importance of understanding the associated outcomes of both (Newman et al., 2014; Sibthorp, 2003). Within the scope of recreation Sibthorp (2003) stated, “There is a clear need for more research to identify which specific program factors are the best predictors of targeted program outcomes and which inhibit or promote the effectiveness of other program factors” (p. 100). Additionally, the study helped to continue defining how leisure experiences can help facilitate well-being among
college students. With emotional health at an all-time low for entering college students (Egan et al., 2014) it is imperative that we understand how leisure can help students increase their SWB. Considering college students only spend more time sleeping than they do engaging in leisure (Mortenson, 2011), it is important that we continue to grow a deeper understanding of the positive outcomes associated with leisure engagement. Additionally, through the Broaden-and-Build Theory (Fredrickson, 2004), we understand the influence positive emotions, which are associated with SWB, have on learning and skill development. Therefore, it is vital we understand how to increase college students’ happiness. Through testing a significant portion of the DRAMMA model we furthered the understanding how leisure facilitates SWB in individuals. Understanding the connection can help programming professionals develop and implement leisure experiences that provide individuals the opportunity to enhance their SWB.

**Research Questions**

Through this study I sought to build upon the DRAMMA model as proposed by Newman et al., (2014), which attempts to link leisure participation to leisure satisfaction and SWB through the five psychological mechanisms of detachment-recovery, autonomy, mastery, meaning, and affiliation. In order to understand the relationship between leisure and happiness the DRAMMA model was tested and the following questions were examined:

1. Do the five psychological mechanisms of the DRAMMA model predict SWB?
2. Do the five psychological mechanisms of the DRAMMA model predict leisure satisfaction?
3. Does leisure satisfaction predict SWB?

4. How well does the DRAMMA model explain SWB in a college student population?

Because of the complexity of the DRAMMA model this study did not test the whole model but instead a significant portion of the model. See Figure 2 for a graphical depiction of the DRAMMA model that was the focus of the study and its relationship to the research questions.

**Delimitations**

This research was delimited in scope in numerous ways. First, there are several HIB that enhance SWB such as social affiliation, goal pursuit, mental control, direct attempts, and religious and spiritual activities (Henricksen & Stephens, 2013; Tkach & Lyubomirsky, 2006). However, this study centered on one of the happiness increasing strategies, leisure participation, as several studies have shown a strong correlation between the two constructs with few empirical studies looking at their relationship (Newman et al., 2014).

Second, leisure facilitates SWB through a variety of different mechanisms such as extraordinary experiences (Jefferies & Lepp, 2012) and personality (Tkach & Lyubomirsky, 2006; Warner & Vroman, 2011); however, this study focused on how participation in leisure activities influences the five psychological mechanisms in the DRAMMA framework, leisure satisfaction, and SWB. This approach was logical as the DRAMMA model, and therefore this study, was based on a bottom-up theory, where the first two variables, life circumstances and genetic set-point, are grounded in a top-down
approach. The model does not recognize the role that happiness plays in influencing the various components of the model (i.e. happy people tend to seek out opportunities for social environments and affiliation). Bottom-up theories of SWB have historically been a source of controversy in happiness literature, but have recently gained renewed support.

Figure 2. Graphical Depiction of the Research Questions
Note. Blue arrows indicate research question 1. Black arrows indicate research question 2. Red arrow indicates research question 3.

In their 2015 meta-analysis on leisure engagement and SWB, Kuykendall et al. recognized the most important theoretical implication of their study was evidence in support of the bottom-up theory for the leisure domain; in fact they stated, “Given that these processes are not mutually exclusive, our findings imply that both processes coexist… appear to account for approximately equal amounts of variance…” (p. 390). It
is important to recognize that motivations for leisure participation (Beard & Ragheb, 1983) influence individual outcomes from leisure. Because this study is looking at leisure as a single construct, motivation was not part of the research.

Third, this study did not focus on one type or category of leisure, for example outdoor recreation. Therefore, the study did not encapsulate all the various leisure activities. The study included generalized conclusions about the DRAMMA model in relation to leisure as a whole but not about specific categories of leisure.

Fourth, this study focused on undergraduate college students, as happiness and leisure are constructs they value. In fact a majority or college students believe happiness and life satisfaction to be extremely important (Diener & Suh, 1999). In terms of leisure, students often indicate recreation and fitness activity to be an important part of their lives and college experience (Haines, 2000). Additionally, the amount of time students devote to leisure has substantially increased in the past 40 years (Babcock & Marks, 2011). In an analysis of college students’ time use during weekdays between 2003-2009, students spend 4.2 hours per day on sports and leisure second only to sleeping at 8.5 hours (Mortenson, 2011). Leisure constantly ranked high as one of the facilitators to meaning and happiness in individuals’ life (Lyubomirsky, King, et al., 2005) and shown to be greater predictors of SWB than sex, education, age, health, employment, income, and marital status (Newman et al., 2014). Considering the aforementioned factors, college students were an ideal group to test the DRAMMA model.

Fifth, the study only used quantitative primary data from a large Midwestern four-year public institution of higher education. The data was collected from full-time
students during the second half of spring semester. The participants voluntarily completed the survey one time.

**Limitations**

This study intended to gain a deeper understanding of the relationship between leisure participation and happiness by testing the DRAMMA model. The limitations of the study include:

1. The study sampled only undergraduate college students at one large Midwestern University.

2. As part of the data collection students who have participated in Recreation Studies and Physical Activity and Wellness courses received a follow-up invitation to participate in the study, as they are more likely to participate in active leisure pursuits, thus increasing their likelihood of responding. The benefits of this limitation are increasing the number of respondents and the likelihood of respondents indicating an active leisure pursuit.

3. The research involved self-reported data that has potential issues of honesty, introspective ability, memory recall, and comprehension.

4. Researchers have over-surveyed college students in past years, resulting in survey fatigue, which can impact response rate along with how accurately and sincerely respondents answer questions. However, because there are no incentives for participating the respondents who do fill out the survey were likely intrinsically motivated.
5. Instrument development to test the DRAMMA model involved combining several different instruments either in whole or utilizing subscales. The measurement tools used have consistently produced results across numerous studies in which valid inferences have been made, however, the instrument as a whole has not been validated beyond this study by other researchers.

6. Because the study is utilizing a bottom-up approach, the influence of the top-down factors were not known. Such influences include general life circumstances and genetic set-point (Lyubomirsky, King, et al., 2005). By not including genetic set-point and life circumstances the study was not be able to assess the influence they have on individual participant’s happiness, thus we utilized the generally accepted variance of 50% and 10% each has on happiness.

Definition of Terms

Throughout this study specific terms are frequently used and defined as follows:

Happiness: There are two types of happiness in the literature: Eudaimonia and Hedonic enjoyment. Eudaimonia means developing one’s potential and purpose linked to personal expression and self-realization by following one’s deeply held values and realizing one’s full potential. Hedonic happiness refers to the positive affect associated with getting or having the material objects and action opportunities a person wishes to possess or to experience. Hedonic is relating to or characterized by pleasure and achieved through maximizing pleasure and the satisfaction of desires (Capaldi, Dopko, & Zelenski, 2014; Tsaur, Yen, & Hsiao, 2013; Waterman, 1993). The hedonic approach is also described as subjective well-being (SWB). SWB has an affective component, meaning the presence of
positive emotions and the absence of negative emotions along with a cognitive component, meaning evaluating one’s life as satisfying (Capaldi et al., 2014). Based on the hedonic and eudaimonic approaches (Seligman, 2002, 2011b) proposed in his theory of Authentic Happiness that happiness is comprised of positive emotion, engagement, and meaning. Happiness is often associated with SWB (Kuykendall et al., 2015; Lykken & Tellegen, 1996), therefore, happiness and SWB will be used interchangeably in this study.

**Subjective Well-Being (SWB):** This is defined as how individuals evaluate their life via life satisfaction through the frequency in which they experience both positive and negative emotions (Diener & Suh, 1999; Diener et al., 1999; Newman et al., 2014). For this study SWB will be looked at holistically and will not be differentiated based on its various components (i.e., affective and cognitive as described previously) (Newman et al., 2014).

**Happiness Increasing Behavior:** Also known as happiness increasing strategies, happiness increasing behaviors are intentional activities comprised of distinct practices that people consciously choose to participate in, even if the choice has become habitual, and requires a degree of effort to enact and does not happen by itself (Lyubomirsky, Sheldon, et al., 2005).

**Leisure:** Leisure is defined as activities one engages in during time spent outside of work and associated responsibilities or other obligated forms of maintenance or self-care (Hurd & Anderson, 2011; McLean & Hurd, 2012). This view of leisure is also considered structural as it relates to the structure of time and activities (Newman et al., 2014). Leisure is also defined as a state of mind, or subjective, as it takes into consideration the
degree to which individuals perceive their activities and use of time as engaging in leisure (Hurd & Anderson, 2011; Newman et al., 2014). According to Newman et al. (2014) often times researchers combine both the structural and subjective aspects, known as leisure engagement, when discussing leisure as will be the case for this study.

Recreation: Recreation is an enjoyable activity people freely chose to engage in during their free time, has socially redeeming values by contributing to society in a meaningful way, and is considered morally acceptable to society (Hurd & Anderson, 2011; McLean & Hurd, 2012). Recreation is considered the fusion between play, which is intrinsically motivated and pleasurable activity that has elements of competition, humor creative exploration, and problem solving, and leisure and is often goal oriented (McLean & Hurd, 2012). Based on the aforementioned is why recreation and leisure will be used interchangeably in this study.

Leisure Satisfaction: This concept describes “… the positive perceptions or feelings which an individual forms, elicits, or gains as a result of engaging in leisure activities and choices” (Beard & Ragheb, 1980, p. 22).

Detachment-Recovery: The concept of detachment-recovery is the degree to which an individual is able to utilize leisure to detach and recover, both psychologically and physiologically, from work and other obligations (Newman et al., 2014).

Autonomy: Autonomy is the degree to which an individual freely chooses to participate in a leisure activity (Newman et al., 2014).
Mastery: Mastery indicates the degree to which a leisure activity challenges and provides learning opportunities for individuals to improve their skill and achieve a new level of success (Newman et al., 2014).

Meaning: Meaning refers to the means and process where individuals gain something important or valuable in life through leisure (Iwasaki, 2008; Newman et al., 2014).

Affiliation: Affiliation is the ability of an individual to socially connect with others through leisure experiences (Newman et al., 2014).

Organization of the Study

This study was organized utilizing the five chapter format. Chapter One provides background information and the rational for the study, including the research questions. Chapter Two is an analysis of current and historical research related to SWB, leisure, and the theoretical framework utilized in this study. Chapter Three provides a detailed description of the research method and description of the survey instruments used for the study. Chapter Four provides a review of the findings from the survey and statistical analysis. Chapter Five is a discussion about the findings as related to the research questions, recommendations for further study, and implications for practice.
Chapter 2: Review of Literature

Introduction

The existing literature on sources and causes of happiness is plentiful. However, little research exists on the relationship between leisure activities and happiness. (Iwasaki, 2007; Newman et al., 2014; Rodríguez, Látková, & Sun, 2008). In the following sections, I review existing research and literature used to inform this study. In particular, I examine the relationship between leisure participation and subjective well-being, by testing the DRAMMA model as proposed by Newman, Tay, and Diener in 2014.

In order to frame the study this chapter includes a review of scholarly literature on happiness including its definition, causes, and importance. In addition, literature focused on the relationship between leisure and happiness is explored by including leisure satisfaction and the five psychological mechanisms, which make up the DRAMMA model. Because the DRAMMA model is the first holistic attempt to directly link leisure to SWB via various psychological mechanisms leisure evokes in individuals, this research stands to provide a significant contribution to the literature.

Defining Happiness & Subjective Well-Being

The concept of happiness is deeply rooted in modern human existence and purpose, manifesting academically in the fields of philosophy, sociology, psychology, and is intertwined through a variety of other disciplines. Aristotle (trans. 2014) went so far as to write, “Happiness is the meaning and the purpose of life, the whole aim and end of human existence.” In the United States the foundational document, The Declaration of
Independence, the pursuit of happiness is proclaimed to be an inalienable right, illustrating a long-standing preoccupation with well-being (Tkach & Lyubomirsky, 2006). Recently there has been an increased interest both academically and culturally around well-being and happiness based on, “…the recognition that well-being necessarily includes positive elements that transcend economic prosperity. The scientific study of subjective well-being developed in part as a reaction to the overwhelming emphasis in psychology on negative states” (Diener et al., 1999, p. 276). Even though the construct of happiness has been ingrained in the modern human psyche as a desired life outcome for hundreds of years and received an increased interest in the academic community, defining the concept can be challenging.

The study of happiness revolves around two distinct philosophies, hedonism and eudemonism. Both traditions have common ground and diverge in distinct ways (Ryan & Deci, 2001; Waterman, 1993; Waterman, Schwartz, & Conti, 2008). Eudaimonia equates to developing potential and purpose and linked to personal expression and self-realization by following one’s deeply held values and realizing one full potential (Capaldi, Dopko, & Zelenski, 2014; Tsaur, Yen, & Hsiao, 2013; Waterman, 1993). Eudaimonia is related to expressing virtue, which according to Aristotle is the best within us, the paramount of excellence, which is achieved by living in ordnance with the daimon. The daimon is the ideal sense of being and the greatest fulfillment in living that each person is capable of; ideally, the daimon gives meaning and direction to one’s life (Waterman, 1993).

Waterman (1993) suggested individuals could reach eudaimonia when involved in activities that facilitate self-realization through personal growth and development and
advancing one’s purpose in life, which he labeled personal expressiveness (PE).

According to Waterman (1990) personally expressive activities occur when there is:

(a) unusually intense involvement in an undertaking, (b) a feeling of a special fit or meshing with an activity that is not characteristic of most daily tasks, (c) a feeling of intensely being alive, (d) a feeling of being complete or fulfilled while engaged in an activity, (e) an impression that this is what a person was meant to do, and (f) a feeling that this is who one really is. (p. 47)

Eudaimonia is distinct from the hedonic view of happiness in its philosophical foundation as it argues that not all desires or outcomes a person values would achieve happiness, even though they are pleasurable (Ryan & Deci, 2001). Critics of the eudaimonic view of happiness believe by defining happiness by external criteria, such as virtue, a normative standard is established by which people’s lives can be judged and compared. In essence, happiness is not defined by the individual but by external criteria or the value framework of outside observers (Diener, 1984; Diener et al., 1999).

The other dominant philosophy on happiness is hedonism, which is rooted in the teachings of Aristippus of Cyrene, who taught that the goal of life is to experience the maximum amount of pleasure. Hedonic happiness is the positive effects of getting or having the material objects and action opportunities a person wishes to possess or to experience. Hedonism is relating to or characterized by pleasure and achieved through maximizing pleasure and the satisfaction of desires (Capaldi et al., 2014; Tsaur et al., 2013; Waterman, 1993). Up until recently and the strong support of the eudaimonic perception of well-being, happiness was most often associated with hedonic enjoyment.
which is getting material objects or having experiences one finds important, as well as the associated affects, be it physically, intellectually, or socially based (Waterman, 1993). Hedonism is a subjective experience and according to Ryan and Deci (2001), “…focuses on subjective well-being, which is frequently equated with happiness…” (p. 161).

Diener (1984) prosed three categories for defining well-being and happiness. The first category is based on external criteria and in line with the eudaimonic ideas as discussed above. The second category is considered life satisfaction and based on the individual to determine what the good life is as calibrated by the individual’s own personal standard. The third meaning of happiness centers on the prevalence of positive affect over negative affect. Most current definitions of subjective well-being have combined the second and third categories meaning SWB has a affective component, the presence of positive emotions and the absence of negative ones, and a cognitive component, meaning evaluating one’s life as satisfying (Capaldi et al., 2014; Caunt, Franklin, Brodaty, & Brodaty, 2013; Diener, 1984; Diener et al., 1999; Newman et al., 2014; Ryan & Deci, 2001). Brajša-Žganec and his colleagues (2011) presented the definition slightly different, by concluding SWB consists of people’s emotional responses to specific life domains combined with their satisfaction with their life as a whole.

Based on the two philosophies of happiness, eudaimonia and hedonic, Waterman (1993) developed two empirical studies using undergraduate and graduate students to identify the convergent and divergent aspects of the constructs by examining activities that were important to the students. The results of the study show that activities that were
most personally expressive, or eudaimonic in nature, were also hedonically enjoyed. Additionally, personal expressiveness was a necessary but not sufficient condition for hedonic enjoyment. Both constructs were associated with activities that lead to drive fulfillment. The constructs diverge as personal expressiveness more strongly relates to activities that foster personal growth and developing one’s best potential (Waterman, 1993). In a follow-up study Waterman et al. (2008) added activities that offer opportunities for balance skill and challenge, self-realization of values, effort, and importance as ones that are more closely aligned with eudaimonia. Hedonic enjoyment was related to feeling relaxed, forgetting personal problems, and losing track of time, whereas eudaimonia or personal expressiveness was more strongly associated with exerting effort, feeling challenged, having high levels of concentration, and having clear goals. Waterman (1993) concluded, “It thus appears that the 2 conceptions of happiness are related but distinguishable…” (p. 678).

Even though the two philosophical components of happiness merit distinction, both are considered positive subjective states and not independent constructs (Waterman et al., 2008). The view of hedonism psychologists is well-being consists of subjective happiness and can be derived from physical hedonism as well as attaining valued outcomes in various realms (Ryan & Deci, 2001). Ryan and Deci (2001) conclude, “Regardless of what is said about this debate, SWB has reigned as the primary index of well-being during the past decade and a half, and much of the research reviewed herein employees SWB as a major outcome variable” (p. 145). In studying the orientations toward happiness Martín, Perles, and Canto (2010) found the orientation towards
pleasure to be most closely associated with happiness thus supporting the hedonic viewpoint. The growth in the field of SWB is a direct reflection of an increased value of the individual, the role it plays in evaluating one’s quality of life beyond social indicators, and the desire to look beyond economic prosperity as a manner in which to evaluate success (Diener et al., 1999).

**Causes of Happiness**

The next step after defining happiness is understanding the causes of happiness, a topic that has seen a significant amount of research. Drawing on previous research Lyubomirsky, Sheldon, and Schkade (2005) proposed three types of variables that influence individual happiness: (a) relevant life circumstances which accounts for 10% of the variance, (b) genetically determined set-point which accounts for 50% of the variance, (c) the extent to which people engage in happiness increasing strategies and behaviors (HIB) which accounts for 40% of the variance. There have been some small discrepancies among researchers about the amount of variance for each area, for instance, Diener (1984) suggested 15% for demographic variables. In the following section, each of the three areas above will be discussed.

**Relevant life circumstances.**

The influence of age on SWB has been studied regularly and often the results have been inconsistent. Happiness is shown to remain constant with age (Bailey & Fernando, 2012), but what makes us happy and the way we experience happiness changes throughout one’s life (Aaker, Rudd, & Mogilner, 2011). However, it has been shown that overall well-being increases after the age of 50 (Aaker et al., 2011). In addition, Lloyd
and Auld (2002) found older people experience lower levels of perceived quality of life and SWB was found to be its lowest in Croatians older than 60 (Brajša-Žganec et al., 2011). There is not an issue of causation as age effects happiness and happiness does not effect age. Diener (1984) concluded, “Thus, young persons appear to experience higher levels of joy, but older persons tend to judge their lives in more positive ways” (p. 554).

In 1998, Diener and Suh reviewed a number of international studies examining the relationship between age and SWB. The results showed that life satisfaction did not decline with age, negative affect changed little across cohorts, and only positive affect declined with age. Hansen and Slagsvold’s (2012) research mostly supports Diener and Suh’s findings when they studied 3,750 Norwegians with ages ranging from 40-75 and the influence their age has on SWB. They collected data in 2002 and 2003, then again in 2007 and 2008. Their results show that life satisfaction, high levels of positive affect and low levels of negative affect are stable from middle age into one’s 70s but decrease thereafter. The authors propose the decline maybe a result of significant negative changes in life satisfaction that occurs later in life via loved one’s passing and declining health.

In addition to age, education has a small but statistically significant correlation to SWB and the effect of education on SWB is weak in the United States (Argyle, 1999; Diener, 1984; Diener et al., 1999). The relationship education has with SWB is closely linked to occupation status and is the primary explanation for education’s effect on SWB (Argyle, 1999). For instance, typically the higher level of education an individual has the higher their income, which is supported empirically because the relationship between
education and SWB becomes non-significant when income is controlled (Diener, Sandvik, Seidlitz, & Diener, 1993).

The relationship between income and happiness has been widely studied in different cultural contexts from various research angles with one of the most widely being in country correlations between SWB and income, which shows a small but statistically significant effect. In the United States the correlation between income and SWB was $r = .12$ in a representative sample (Diener et al., 1993). Income change only temporally increases or decreases happiness as individuals adjust to their income levels over time (Diener et al., 1999). Individuals living in affluent industrialized Western nations have unprecedented wealth, and living in relative peace, comfort, and security, for twice as long as their great-grandparents did, “Yet, despite all these improvements in material conditions, it does not seem that people are so much more satisfied with their lives than they were before” (Csikszentmihalyi, 1999, p. 822). Csikszentmihalyi (1999) proposes four reasons why material wealth does not influence happiness to the expected level. The first reason is as people reach a certain income level they become habituated and start striving for the next level of income and property. The second reason is people evaluate their possessions in comparison with those who have the most and not by what they need to live in comfort. Third, no one ever claimed that material possessions and money alone will make someone happy. Fourth, as individuals put more of their psychic energy into material wealth they have less energy to focus on the other avenues of happiness. Instead other factors such as satisfying family life, close friends, and having time to pursue diverse interests greatly influence happiness.
In addition to income, employment effects happiness as individuals who are employed full-time, retired, or taking care of home duties are happier than those who are underemployed or unemployed (Diener, 1984; Wang & Wong, 2014). A study exploring long-term happiness revealed employment had a statistically significant impact on an individual’s happiness. Even though circumstances account for only 10% of variance in SWB most respondents mentioned employment as part of their “happiness recipe” (Caunt et al., 2013).

Another life circumstance that influences happiness is the positive relationship between marriage and SWB as married people report greater happiness than those who have never been married, divorced, separated, or widowed (Argyle, 1999; Lyubomirsky, Sheldon, et al., 2005; Wang & Wong, 2014). The correlation between marriage and SWB remains even after controlling for age and income (Diener et al., 1999). Social relationships are a complex influence on happiness because of cofounding variables such as marriage. Generally stronger relationships indicate happier people (Caunt et al., 2013). Of particular importance is noting the link between marriage and SWB was bidirectional, meaning happy people are more likely to get married and a positive marriage makes people happy (Lyubomirsky, King, et al, 2005; Myers & Diener, 1995).

Religion is another important life circumstance that numerous studies have found correlates to increases in happiness even though the effect is small (Argyle, 1999), especially when you measure religious behaviors rather than attitudes (Diener et al., 1999). In other words, there is a generally low but consistent correlation between religion and happiness (Csikszentmihalyi, 1999). The relationship may be influenced by age,
education, and social contacts as the effects are reduced when controlling for these variables (Diener et al., 1999). Lun and Bond (2013) noted that in nations where religion is practiced in a social context religion and spirituality was positively related to SWB.

**Genetic set-point.**

The set-point is a temperamental predisposition or baseline that is genetically determined and thought to be fixed and stable over one’s lifetime as individuals are unable to control it. The set-point or personal set range is estimated to account for 50% influence on someone’s overall happiness. (Lyubomirsky, Sheldon, et al., 2005). People’s happiness may be temporally influenced by major life events, both positively and negatively, creating a range, but most people return to their set-point over time (Lykken & Tellegen, 1996), also known as hedonic adaptation (Henricksen & Stephens, 2013). Evidence for genetic set-point’s influence on SWB comes from genetic-behavior studies using sets of twins. Tellegen, Lykken, Bouchard, Wilcox, and Rich (1988) studied monozygotic (identical) and dizygotic (fraternal) who were raised together and apart using the Multidimensional Personality Questionnaire (MPQ), and concluded that on average 50% of the measured personality differences can be attributed to genetics. The study also found that heritability accounts for 40% of the variance in positive emotionality and 55% of negative emotionality. Even though it is not directly related to genetics Tellegen et al. (1998) found another important finding, which is common environments play a modest role in the determination of personality traits, with a small exception. The shared family environment accounts for 22% of the variance for positive emotionality and 2% for negative emotionality. The researchers suggested that “… the
A common area of research that coincides with heritability is personality traits, which is an enduring biologically based component of an individual. Extraversion and neuroticism are the two most researched personality traits associated with happiness. Extraversion and neuroticism are considered the most robust predictors of happiness (Tkach & Lyubomirsky, 2006), and the connection is so strong the measurement of extraversion and neuroticism can serve as a proxy assessment of the genetic set-point (Warner & Vroman, 2011). Costa and McCrae (1980) in their seminal work on the influence of extraversion and neuroticism on SWB concluded that extraversion leads to positive affect and neuroticism leads to negative affect, both of which influence well-being.
happiness, and they termed temperamental path. Coinciding with the temperamental path is, “certain traits maybe instrumental in creating conditions that promote happiness or unhappiness” (McCrae & Costa, 1991, p. 228). For example, extroverts may create opportunities for themselves to participate in social activities that contribute to a greater quality of life and in turn higher life satisfaction. In other words, one’s traits or temporal set-point, influences their behaviors, social engagement activities, which increases happiness. Considering one’s set-point is hereditary, it is only logical to focus on happiness increasing behaviors (HIB), as they are within one’s ability to control and modify (Tkach & Lyubomirsky, 2006).

**Happiness increasing behaviors.**

Historically, happiness research has focused on circumstances and genetic set-point (Henrickson & Stephens, 2013), with very little attention given to the behavioral aspects. Until recently behavioral research has focused on how certain behaviors increase negative moods, not the elevation of positive moods (Tkach & Lyubomirsky, 2006). Lyubomirsky, Sheldon, et al. (2005) consider, intentional HIBs to offer the best opportunity for enhancing and maintaining increases in happiness. HIB activities are intentional actions or practices of what people think and do. Activities are more controllable than genetic factors, personality, and most circumstances thus offering the greatest opportunity to increase an individual’s happiness (Caunt et al., 2013). Intentional activities are distinct practices that people consciously choose to participate in, even if the choice has become habitual, and requires a degree of effort to enact and does not happen by itself (Lyubomirsky, Sheldon, et al., 2005). Intentional activities
involve thoughts and actions that fall into three categories that merit distinction, even though they are impossible to fully separate: behavioral reflects a person’s actions (e.g., exercising), cognitive reflects a person’s attitudes (e.g., reframing situations into a more positive light), and volitional reflects motivation towards goals (e.g., devoting effort to meaningful causes).

In order to begin to fill in the empirical gap of the impact behaviors have on happiness, Tkach and Lyubomirsky (2006), in their exploratory study, wanted to answer several questions. First, they wanted to know what strategies an individual uses to maintain and increase their happiness levels. Second, the researchers wanted to understand the predictive power of the strategies and how they relate to an individual’s happiness. They studied 500 undergraduate students’ ratings for frequency of engagement in 66 HIB, that were the result of the most frequently listed behaviors in the pilot study. Exploratory factor analysis revealed eight broad happiness increasing strategies that included affiliation, goal pursuits, passive, direct attempts at happiness, active leisure, religion, partying, and mental control (listed from most frequently used to least). Correlational analyses showed that all the strategies with the exception of mental control, which was inversely related, and passive leisure, were positively correlated with happiness. Regression analysis revealed that happiness could be reliably predicted by knowing the frequency in which individuals engage in the eight HIBs as they accounted for 52 percent of the variance. Individually, each strategy predicted happiness in the regression model with the exception of passive leisure and goal pursuit (Tkach & Lyubomirsky, 2006).
In 2011, Warner and Vroman followed up on Tkach and Lyubomirsky’s work by surveying 903 college students about the frequency they participated in HIBs that where identified by Lyubomirksy (2008) in her book, “The How of Happiness.” The 14 behaviors used by Warner and Vroman included nurturing relationship, acts of kindness, cultivating optimism, savoring, committing to goals, developing new ways to cope, gratitude, flow, avoiding worry, religious or spiritual behaviors, meditation, forgiveness, physical exercise, and healthy eating (p.1066). Nurturing relationships and cultivating optimism were the most frequently used HIBs with meditation and spiritual activities being indicated as the least used strategies. Correlational analyses revealed all HIBs in this study were positively correlated with happiness between .20-.31 with cultivating optimism (r = .41) and savoring (r = .38) having the highest correlation and mediation (r = .07) and religious or spiritual behaviors (r = .11) being the lowest. Because of the high correlations among many of the HIBs the researchers completed exploratory factor analysis in order to see if the behaviors might be reduced to a smaller number of dimensions. The researchers did not have a theoretical basis to predict the number or nature of the factors so they clearly noted the exploratory nature of the analysis. The outcome was three factors positive/proactive behaviors, spiritual behaviors, and physical health behaviors which, accounted for 48 percent of the variance. After controlling for personality, HIBs accounted for 10 percent of additional variance in happiness. The study further supports Tkach & Lyubomirsky’s (2006) findings by providing additional evidence that naturally occurring behaviors play a significant role in and are predictive of happiness (Warner & Vroman, 2011).
In 2013, Henricksen and Stephens developed the Happiness-Enhancing Activities and Positive Practices Inventory (HAPPI) in order to measure the importance, frequency, and satisfaction older adults have with their happiness enhancing activities. The instrument consisted of 22 items that assess the importance and engagement of various activities, which through factor analysis were broken into four areas: self-concordant work, personal recreation and people, spiritual and thought-related, and-focused activities. Self-concordant work and personal recreation and people subscales demonstrated the strongest correlation with happiness. Through regression analysis personal recreation and people ($\beta = .146$) and self-concordant work ($\beta = .114$) were the strongest predictors of happiness in older adults.

When comparing Tkach and Lyubomirsky’s (2006) eight broad factors, Warner and Vroman’s (2011) three factors, and Henricksen and Stephen’s (2013) four factors several common areas emerge along with distinctions. For instance, all three had components of affiliation, spirituality and religion, recreation and health, mental control/intentionality, and goal pursuits. However, differences emerged as Tkach and Lyubomirksy had partying while Hendricksen and Stephen’s had self-concordant work, which is logical as the former was focused on college students and partying is an aspect of their life that tends to fade as they get older and the latter is focused on adults and work is an important part of their life. All three studies found happiness-inducing strategies play statistically significant role in enhancing and predicting an individual’s happiness. Additionally, the authors’ of each of the studies recognized the promise of HIBs in happiness research and called for more research in understanding how the
behaviors influence happiness (Henrickson & Stephens, 2013; Tkach & Lyubomirsky, 2006; Warner & Vroman, 2011). Csikszentmihalyi (1999) went so far as to write, “Happiness is not something that happens to people but something that they make happen” (p. 824).

**Importance of Happiness**

Happiness is a complex construct with varying definitions and causes that are still being explored by researchers, but one aspect of happiness that researchers agree on is the important role happiness plays in individuals’ lives. Research on SWB constantly shows that traits valued by society and desirable life outcomes correlate with happiness. Happiness may be the most important population statistic, even beyond economic growth and physical health because of its influence on societal function as, “SWB is good for populations. A contented populace is advantaged in many ways over one that is not. Happy citizens create more social capital, work harder, are healthier, and are more self-sufficient” (Cummins, Lau, Mellor, & Stokes, 2009, p. 32).

One area happiness has influence is in the work place. Lyubomirsky, King, et al. (2005) in their meta-analysis looked at the influence happiness has on various aspects of people’s lives by reviewing 225 papers that included 293 samples with 275,000 participants, and 313 independent effect sizes. Cross-sectional evidence concluded that individuals with high levels of SWB secure more job interviews, are evaluated more positively by supervisors once hired, show greater job performance and productivity, secure better jobs, have increased income and organizational citizenship. All while being less likely show counter-productive work place behavior, absenteeism, turnover, and
burnout (Lyubomirsky, King, et al., 2005). Carnevale and Isen (1986) in their experimental research on positive affect influence on negotiation strategies and outcomes found those who received positive affect induction rated their situations as more positive, pleasant, informal, helpful, and less businesslike. Positive affect was also found to facilitate constructive and cooperative bargaining in negotiations. Additionally, positive affect facilitates creativity, cognitive flexibility, innovative responding, and openness to information (Isen, 2001), all valuable skills in the workplace. Isen (2001) concluded, “…these results, combined with the enhanced social skills and kindness that also result from positive affect, suggest that positive affect in employees may lead to more effective, as well as happier, employees—and this, in turn, may impact customer satisfaction” (p. 83).

Besides the connection between happiness and the workplace, there are numerous personal and societal benefits as individuals who are happier tend to be more involved in their community, have stronger social support and friendships, are mentally and physically healthier, have stronger marriages, and live longer. Additionally, happier individuals are more confident, have greater optimism, increased self-efficacy, possess prosocial behavior, and have effective coping skills to deal with challenge and stress (Lyubomirsky, King, et al., 2005). The influence of happiness on pro-social behaviors and coping skills is further supported as individuals whom positive affect has been induced take on problem-solving to interpersonal conflict by looking for a solution that involves creativity in order to create an integrative solution (Carnevale & Isen, 1986). The positive role happiness plays in society was found through a review of relevant
research in which Isen (1987, 2001) promoted the idea that positive affect fostered helping and generosity as measured by individuals donating to charity, volunteering, and helping someone in need.

Happy people have frequent positive emotions and build up skills and resources for future use that cultivates success and desirable outcomes a concept known as broaden and build (Fredrickson, 2001, 2004). Additionally, happy people have built up over time resources and skills while experiencing positive emotions that can be used during future endeavors (Fredrickson, 2001; Lyubomirsky, King, et al., 2005). Emotions are associated with acting in a particular way, which is called specific action tendencies. For instance, when someone experiences joy, which is often used interchangeably with happiness, they have an urge to be playful. Whether they act on that urge is a combination of intentions, impulse control, cultural norms, etc.… In essence, emotions are not just thoughts but also include action tendencies. Fredrickson (1998) concluded, “through specific action tendencies, then, emotions prepare both mind and body to act in specific ways” (p. 302). Counter to negative emotions positive emotions elicit thought-action tendencies, broaden an individual’s possible thought-action repertoire, and build one’s skill set. Building off the example of joy above in eliciting an individual’s inclination to engage play, it is through recurrent play that one builds social, physical, and intellectual skills (Fredrickson, 1998). Happier individuals experience frequent positive emotions and are more likely to work towards new goals and be involved in new experiences while in a positive mood. Furthermore, if the situation is important or interesting to an individual positive affect, “facilitates systematic, careful, cognitive processing, tending to make it
both more efficient and more thorough, as well as more flexible and innovative” (Isen, 2001, p. 75).

**College Students.**

Researchers have found education level has a small, but statistically significant correlation to happiness based on the number of years and/or level of attainment. The effect of education on happiness is indirect, received upon graduation or obtaining a credential, and mediated through the benefits of education such as income, occupational status, and job satisfaction (Argyle, 1999; Diener et al., 1999; Pascarella & Terenzini, 2005). The effects of education on happiness are only received at graduation or receiving a credential but the question remains what role does happiness play during the educational process? Even though enhancing SWB through HIB is an important aspect for everyone in society, college students are a specific population subset that could greatly benefit from increased happiness as it is a life outcome, promotes positive well-being, and fosters valuable personal traits.

**Impact of college.**

Education, in particular a college education, is a multifaceted complex process that holds value to society, students, and educators. The challenge becomes each stakeholder has an idea of what the outcome(s) of an education should be and the process by which to achieve the outcome(s). However, there is little doubt the college experience has a major impact on students as supported by results from the 22 years the Higher Education Research Institute at UCLA has administrated the College Senior Survey (CSS), which aims to connect academic, civic, and diversity outcomes with various
college experiences in order to measure the impact of college. One important component of the survey in measuring the impact is the longitudinal section that looks at the difference in life goals between freshman and senior years. Of particular importance is that by the end of college 58.8 percent of students indicated developing a meaningful philosophy of life was essential or very important to them, an increase of 8.1 percent from freshman year. In addition, there was a 12.2 percent increase in students rating themselves as above average in self-understanding. Students also indicated an increased desire to volunteer in their communities be it for the environment (10.3% increase) or participating in community action programs (6.2% increase). Not all results are positive as students indicated a decrease in emotional and physical health (-1.6% and -5%) respectively (Franke, Ruiz, Sharkness, DeAngelo, & Pryor, 2010). One area that was particularly interesting was the 7.3 percent decrease in students who reported becoming very well off financially as “essential” or “very important” to them. As previously indicated wealth is not a cause of happiness and financial security only influences the happiness levels of those who are poor. The decreased interest in financial success maybe an indication that college has helped students define and possibly find what is important to them. All the aforementioned components assessed in the CSS are associated with happiness and recognized as outcomes of the college experience.

Positive well-being.

In terms of mental well-being the World Health Organization (2001) report on mental health noted depression was the leading cause of disability globally. Depression is one of the most common psychological disorders and carries a heaviest burden of
disability among mental and behavior disorders. In 2014, it was estimated that 6.7 percent of adult 18 years or older and 9.3 percent of adults between the ages of 18-25 had had at least one major depressive episode in the past year (NIH, 2014). Among college students, emotional health is at its lowest point in three decades as nearly 10 percent of the 2014 freshman class that responded to the American Freshman Survey indicated they “frequently felt depressed” which is 3.4 percentage points higher than in 2009 (New, 2015). Additionally, more than half of college students said they have experienced “overwhelming anxiety” in the last year and 32 percent say they have felt so depressed “that it was difficult to function” (American College Health Association, 2013).

Exacerbating the issue is the fact that students are socializing less and spending more time on social media. In 2007, 18.9 percent of students spent more than six hours per week on social media; now 27.2 percent indicate spending more than six hours per week on social sites. Additionally, almost 40 percent entering freshman indicated they spend less than 5 hours per socializing with friends (Egan et al., 2014). Individuals with depression lack motivation for normal and productive living and are less likely to stay employed and maintain meaningful relationships (Cummins et al., 2009). The increase in students’ lack of emotional well-being is problematic for colleges as students with lower levels of emotional health lack a sense of belonging on campus, are less satisfied with college, fall asleep in class, are more likely to come late to class (Higher Education Research Institute, 2014), and tends to negatively affect their grades.

With students indicating higher levels of depression and anxiety along with significant decreases in socialization, positive affect and happiness offer an opportunity
to counter negative emotions. Negative emotions such as anxiety and depression narrow an individual’s attentional focus, while positive emotions expand one’s attentional focus (Fredrickson, 1998). Positive emotions are considered an efficient antidote to negative emotions and can undo the lingering effects of negative emotions (Fredrickson, 1998, 2004). In Sin and Lyubomirsky’s (2009) meta-analysis of 51 positively oriented interventions for individuals with depressive symptoms the authors noted that depressed individuals benefit from increases in positive emotions as they offset the physiological effects, by speeding up recovery, from negative emotions. The results showed, “…that positive psychology interventions do indeed significantly enhance well-being ($r = .29$) and decrease depressive symptoms ($r = .31$)” (p. 482). By developing positive affect a positive influence can be created in social interactions, memory, and judgment (Isen, 1987). Therefore, individuals can improve their emotional well-being by cultivating experiences of positive emotions (Fredrickson, 2000). In addition, positive emotions can help fuel psychological resiliency, which allows people to recover or bounce back from stressful experiences quickly. Resilient individuals use positive emotions to cope with stress and adversity and have optimistic and zestful approaches to life (Fredrickson, 2004). Thus in order to counter the effects of depression opportunities for developing positive emotions must be provided.

**Valuable personal traits.**

When individuals experience positive emotions they build physical, intellectual, and social resources that are more durable in nature than the emotional states that lead to their acquisition. Thus, the effect is the building of durable personal resources that can
be drawn on later in other contexts (Fredrickson, 1998, 2004). Isen (1987) suggests, “There is evidence that positive affect gives rise to an enlarged cognitive context” (p. 222). Positive emotions facilitate learning and mastery thus developing intellectual resources. Individual’s who experience positive affect has been shown to be more creative thinkers, create more inclusive and flexible categories, are able to relate and establish interconnectedness among thoughts and ideas, and offer more unusual cognitive associations (Fredrickson, 1998). In addition, positive emotions build psychological capitol, which allows individuals and organizations to flourish. An outward example of positive emotions is in the use of language. Companies and individuals that utilize higher positive language versus negative language in their interactions, known as the Losoda ratio, will flourish in both business and relationships (Seligman, 2011a).

The positive emotions of joy, contentment, interest, and love sever as the basis for Fredrickson’s Broaden and Build theoretical framework. The outcomes of such emotions are skills and actions that align well with a college education. For instance, joy creates the urge to play, push limits, and be creative in physical, intellectual, and artistic endeavors. Contentment creates the desire in people to, “… sit back and savor current life circumstances, and integrate these circumstances into new views of self and the world” (Fredrickson, 2004, p. 1369). Interest is another distinct positive emotion and creates the urge to explore, seek new information and experiences, and expand the idea of self. Finally, love is a combination of joy, contentment, and interest that creates the need to explore, play with, and savor our loved ones, which in turn builds and strengthens
social bonds while solidifying one’s social resources (Fredrickson, 1998, 2004). All of
the aforementioned skills are important not only while in college but after college as well.

Besides broadening and building resources and skills developing SWB in college
students is important as it facilitates growth in pro-social behaviors. Pro-social behavior
refers to a broad range of actions and behaviors that benefit others beyond oneself.
Behaviors such as helping, comforting, empathy, concern for others, sharing, and
cooperation are often associated with individuals acting in a pro-social manner (Batson,
1998). When individuals experience positive affect, it increases the likelihood that an
individual will help others in need and be more kind and generous (Isen, 1987).
Additionally, when people are happy the are more involved in their community and spend
time volunteering (Lyubomirsky, King, et al., 2005). When a person experiences an act
of altruism it increases their level of positive emotion and creates the desire to reciprocate
the act and extend kindness to others, such acts establish the basis for a cooperative and
supportive relationship (Fredrickson, 1998; Isen 1998). By understanding how recreation
and leisure experiences effect an individuals’ happiness we can continue to find ways to
increase one’s happiness which facilitates pro-social behavior and thus a more positive
and productive society.

Happiness’s role in education.

Dearden (1968) made a poignant statement about education that directly aligns
with Aristotle’s postulation about happiness when he wrote, “education may be broadly
defined as the process of learning through which we come to an understanding and
appreciation of what is valuable or worth pursuing in life” (p. 27). Kuh and his
colleagues’ (2006) conceptualization of education aligned with Dearden’s viewpoint, as they felt a college education should prepare students to live productive and satisfying lives, but also felt a college education should provide students with the knowledge to be economically independent. Both Aristotle (2014) and Dearden (1968) felt happiness is a worthy outcome for education, but also a worthy pursuit for life. Happiness is a valuable and worthy outcome of college, but up until recently, it was not recognized as being a part of the student experience even though students expect the university experience to play a part in identifying what will make them happy. Education at its best should allow students to find joy in learning by allowing them the opportunity to pursue paths that afford pleasure and meaning in their accomplishments while allowing them to prosper materially and emotionally (Ben-Shahar, 2007). Students have an expectation for happiness which led Gibbs and Dean (2014) to conclude, “There remains an expectation for happiness and there is an edifying role for the university in helping students grasp their potential and their happiness” (p. 428). College students who are satisfied with their school work, have good relationships, and manage their time tend to be happier than other students (Chan, Miller, & Tcha, 2005). These findings were supported by Gibbs and Dean (2014), who created a clear differentiation between happiness and satisfaction in setting up their study and found that satisfied students tend to be happy students. Additional research found that educational environment, personal goal achieving, and extracurricular actives influenced students’ level of happiness (Mangeloja & Hirvonen, 2007). Interestingly, social relationships, leisure, and goal achieving are HIBs that are

Happiness as an outcome of a higher education may seem idealistic but Gibbs and Dean (2014) made a profound case for its place when they wrote, “Selected capabilities would shape and inform conditions, practices and the evaluation of outcomes of university education which is for rationality and freedom, higher learning and agency of students’ and thus to reveal potential for profound happiness” (p. 430). The role higher education in America has shifted from the preservation of intellectual culture and character development to a more technically oriented education (Brubacher & Rudy, 1997). Noddings (2003) noted this shift as a desire to keep the country economically strong and give our citizens an opportunity to do well economically, which has lead our education system to lose focus on the more important aims of developing an educated society. Educational institutions have become consumer driven with the goal of creating pleasurable and measurable experiences that foster satisfaction indicators that are more for building reputations than education (Gibbs, 2015). No doubt, economic security and prosperity are important aspects of education but should it be the driving force? A college education, “should challenge students to develop the capabilities to optimize their potential to make responsible choices…this does not diminish the mood of contentment but strengthens students’ resolve to create personal identity within the context of being a member of society” (Gibbs, 2015, p. 65). Universally people want to be happy and society benefits from its outcome through a greater since of community, democracy, and
service but our education system does very little to support citizens in reaching this goal (Noddings, 2003).

As illustrated previously high levels of subjective well-being has a positive impact on society. If we concede, that happiness is the ultimate purpose in life (Aristotle, 2014), is a worthy aim of education (Noddings, 2003), can serve to counter the effects of depression and negative emotions (Fredrickson, 1998, 2004), and higher education has a positive impact on students (Franke et al., 2010), then it would be logical to make SWB a central aim of a colligate education. Institutions of higher education are well suited to enhance SWB for students, by helping them engage in HIB.

Measures of Happiness

A variety of different measures have been used to ascertain an individual’s level of happiness, as there is no standard measure of happiness (Bailey & Fernando, 2012). Many studies have utilized single item indicators such as “I am happy,” which has been proven to be valid. However, given the controversy and reliability issues with single item measures other instruments have been used in happiness studies. Bailey and Fernando (2012) used a four item construct utilizing several aspects of happiness including possessions and status, perspective-taking, comparison with others, and mood stability. Reliability for their measure was acceptable ($\alpha = .70$). Other measures such as the Life Satisfaction Scale and Happiness Scale have been used in studies in order to measure SWB (Brajša-Žganec et al., 2011). Again both instruments use single items, “When all is taken into account, how satisfied are you with your life in general?” and “When all is taken into account, how happy or unhappy do you usually feel?” Higher scores on both
scales indicate higher levels of life satisfaction and happiness. Diener and colleagues (1985) developed the Satisfaction with Life Scale (SWLS) using five items to measure global cognitive judgments of satisfaction with one’s life. To provide a more well round measure Lyubomirsky and Lepper (1999) developed the Subjective Happiness Scale (SHS) to assess happiness using four self-reported items and has been used in several studies. The SHS measures both the cognitive and affective components of happiness. In addition the Personal Well-Being Index (PWI) has been used as a measure of happiness in several studies (e.g., Hribernik & Mussap, 2010; Liu & Yu, 2015).

Even though SWLS measures life satisfaction, it does not fully measure SWB as the instrument does not evaluate positive and negative feelings. There are two primary questionnaires that measure an individual’s moods or feelings, the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Teilegen, 1988) and the Scale of Positive and Negative Experiences (SPANE) (Diener et al., 2010). The PANAS is a twenty-item measure with ten items for positive affect and ten items for negative affect. SPANE is a twelve-item instrument with six items to assess positive feeling and six items to measure negative feelings. Both scales have been shown to have strong psychometric properties, however in a study of Serbian young adults and adolescents the SPANE was shown to explain additional variance in life satisfaction and general well-being beyond PANAS (Jovanović, 2015). The SPANE scales were validated by Diener et al. and they reported coefficients of α=.87 for positive, .81 for negative, and .89 for affect balance. When combining the SWLS with one of the affect questionnaires a more holistic picture of SWB can be obtained.
**Leisure**

One happiness increasing behavior that positively influences SWB is participation in leisure activities (Henricksen & Stephens, 2013; Kuykendall et al., 2015; Tkach & Lyubomirsky, 2006; Warner & Vroman, 2011); however, the relationship between the two constructs has received little attention in the literature (Iwasaki, 2007; Newman et al., 2014; Rodríguez et al., 2008). The field of leisure studies is multifaceted and studied by scholars from a diverse array of disciplines such as philosophy, education, psychology, biology, sociology, economics, business, and exercise science. The vast disciplines that study leisure is an indication of the significant role leisure plays in individuals’ lives as it serves as a developmental tool for personal growth, which results in leisure patterns being created early on. Scott and Willits (1998) built upon their earlier work in linking adolescent leisure participation and similar involvement later in life, by surveying participants 45 years after their initial responses concerning their leisure choices. In 1947, a group of high school sophomores answered a questionnaire about their current leisure involvement and were asked again in their 50s and then again in their early 60s. The results indicate the greater the involvement in a particular activity type (i.e., sports) early in life the more frequent one participates in the same activity type later in life. Thus, adolescent leisure participation continues to influence the leisure choices of individuals across their life span. Social development theory supports the results by suggesting there is continuity in behavior across one’s life despite the changes one experiences in life; this is particularly true in the leisure domain (Scott & Willits, 1998).
The recreation and leisure field has a long history of providing powerful developmental programs for individuals with outcomes including autonomous action, intrinsic reward, creativity, identify formation, development of competence, enhanced physical and emotional health, and a sense of belongingness (Allen & Barcelona, 2011; Kleiber, 2001). Furthermore, leisure engagement affords people an opportunity to receive relief from stress, to socialize with others, to examine personal values, and to fulfill goals all of which are related to SWB (Caunt et al., 2013). Even with such a strong relationship to SWB, leisure is largely absent from studies of happiness (Wang & Wong, 2011) and the relationship is complex (Brajša-Žanec et al., 2011; Iwasaki, 2007; Newman et al., 2014; Rodriguez et al., 2008).

**Defining leisure.**

The concept of leisure was first introduced by the Greeks (Fleming, Allen, & Barcelona, 2011) but has been in practice since the evolution of modern humans. The Greeks viewed leisure as a way of life, the ideal, and one of life’s ultimate pursuits. Aristotle considered leisure as being free from obligation which allowed for engagement in the highest forms of learning such as physical activity, music, and literature, thus only people in their leisure are happy (Fleming et al., 2011; Min & Jin, 2010). There are many concepts of leisure but one of the most popular views maintains the Greek conception of freedom from obligation and free time (Fleming et al., 2011). Leisure is defined as activities one engages in during time spent outside of work and associated responsibilities or other obligated forms of maintenance or self-care (Hurd & Anderson, 2011; McLean & Hurd, 2012). This view of leisure is considered structural as it relates to the structure
of time and activities (Kuykendall et al., 2015; Newman et al., 2014). The structural view on leisure is based on the assumption that time outside of work and/or specific activities constitute leisure for an individual, which creates an incomplete picture. Therefore, when defining leisure it is important to include the manner in which individuals perceive themselves to be participating in leisure, known as subjective leisure (Kuykendall et al., 2015; Newman et al., 2014). This more modern component of leisure incorporates a subjective element in which leisure is defined as a state of mind because it takes into consideration the degree to which individuals perceive their activities and use of time as engaging in leisure (Hurd & Anderson, 2011; Newman et al., 2014). According to Newman et al. (2014), often researchers combine both the structural and subjective aspects when discussing leisure and the term ‘leisure engagement’ has been used to encompass both aspects of leisure (Kuykendall et al., 2015). Archibald (2008) offered a well-rounded definition of leisure when she wrote, “For leisure time to exist, a person must feel free from constraints, have a feeling of positive outcome, be motivated by internal forces, and have a perception of competence” (p. 9).

Besides having two separate components, leisure is categorized in several subgroups but more broadly is viewed as being either passive or active. Passive leisure is time spent in activities that involve relaxing and requires little effort. Passive leisure often occurs inside the home and typically sedentary and may do little to improve physical health or cognitive functioning. Active leisure often occurs outside the home, involves contact with others, and divided into three categories of activities (a) Social leisure primarily involves socializing with family and friends; (b) Cognitive leisure
focuses on mentally stimulating actives that involve improving cognitive functioning; (c) Physical leisure involves participating in sport and exercise as a way to improve physical health (Employment and Social Development Canada, 2010). In many cases, active leisure is comprised of more than one of the above categories.

Nash (1960), an early educator in the leisure and recreation field, highlighted the difference between active and passive leisure when he diagramed a pyramid of leisure activities. The bottom of the pyramid included negative activities that individuals engage in that consist of acts against society and just above that was acts against self, such as substance abuse. If the pyramid was developed today, Archibald (2014) suggested modern day activities such as addictive gambling, sedentary lifestyle, overeating, pornography, along with several others would be added to the pyramid. Above the negative line Nash placed passive leisure actives, which he titled spectator activities, which individuals participate in to pass time, escape boredom, or purely as entertainment and amusement. Examples of such activities would be movies, television, cheap literature, and in today’s world some leisure choices involving computers. The top three levels of the pyramid would be considered engage participants emotionally, active leisure, and finally creativity. Nash felt too many people engage in activities low on the pyramid and adamantly encouraged raising the level of participation in order to develop and enrich one’s life (Nash, 1960). Even though Nash’s pyramid is dated, it still provides a strong starting point when discussing the merits of passive and active leisure. However, it could be argued the hierarchal nature of the model should not be absolute in practice or within the best interest of everyone. For instance, after a long stressful work week,
engaging in passive leisure that allows one to relax and detach from work and other obligations can benefit in the work-stress recovery process (Sonnentag, 2001; Sonnentag & Bayer, 2005).

Besides leisure being either active or passive or classified on the basis of its broader attributes as seen in Nash’s pyramid, several researchers have attempted to put leisure activities into homogeneous groups (Rodríguez et al., 2008). Utilizing 82 leisure activities Tinsley and Eldredge (1995) proposed a classification of leisure activities based on their need gratifying qualities that included agency, novelty, belongingness, service, sensual enjoyment, cognitive stimulation, self-expression, creativity, competition, vicarious competition, relaxation, and residual (p.128). Brajša-Žganec and his colleagues (2011) used the three broad categories of active socializing and going out, visiting cultural events, and family home activities when classifying the various leisure activities in their study. Lloyd and Auld (2002) grouped leisure activities into six categories based on their frequency including mass media, social activities, outdoor activities, sports activities, cultural activities, and hobbies. One of the most common ways leisure is classified is based on how frequently individuals participate in leisure activities which can be problematic if a limited range of activities is studied and often times frequency of participation does not provide enough information about how participation influences the outcome variable (Tinsley & Eldredge, 1995). There is no agreement on a single classification of leisure activities in the literature which makes it a challenge to systematically assess leisure activities (Brajša-Žganec et al., 2011).
Leisure and Happiness

**Structural and subjective components.**

Even though the relationship between leisure and happiness has not been studied to the extent of other constructs related to happiness, the influence of leisure on happiness should not be understated. Newman and his colleagues (2014) went so far as to state, “In certain studies, leisure activities and recreation satisfaction have even been shown to be greater predictors of life satisfaction and quality of life than sex, education, religiosity, marital status, age, health, employment status, and income” (p. 572-73). Further supporting the connection is leisure constantly ranked high as one of the facilitators to meaning and happiness in an individual’s life (Iwasaki, 2007; Lyubomirsky, King, et al., 2005). Leisure may carry a greater potential for enhancing SWB than other life domains (Kuykendall et al., 2015) thus the relationship needs to be more thoroughly studied.

One way the relationship between leisure and happiness has been studied is by looking at the effect frequency, duration, and quality of leisure experiences has on happiness. Rodríguez and his colleagues (2008) looked at leisure and life satisfaction by trying to determine how participation levels in each activity can be used to predict happiness. The researchers situated the study in the context of activity and need theory in order to analyze if one provides a better understanding of the relationship between leisure and life satisfaction. Activity theory (Havighurst, 1961) suggests the greater the frequency and intimacy of the experience the greater the life satisfaction. Need theory offers an alternative perspective that states when individual needs are met, be it physiological or psychological, it has a beneficial effect on their subjective well-being
The results of the study indicate the greater an individual perceives their needs to be satisfied the higher their life satisfaction. Additionally, the more individuals participated in leisure activities (frequency) the greater their life satisfaction (Brajša-Žganec et al., 2011; Leversen et al., 2012; Rodríguez et al., 2008). Need satisfaction predicted 27 percent of the variances while activity participation predicted 4 percent of the variance in life satisfaction (Rodríguez et al., 2008). In an adolescent sample satisfaction of the basic psychological needs of autonomy, competency, and mastery as proposed by Deci and Ryan (2000) explained 18 percent of the variance in life satisfaction. Brajša-Žganec and his colleagues (2011) found similar results in relation to activity theory as frequency of participation in family activities (e.g., visiting friends and family, going to church) contributed to SWB in both men and women across all ages, which they contributed to the intimacy of the family activity leisure experiences.

Lloyd and Auld (2001) utilized similar constructs as Rodriguez and his colleagues in measuring leisure’s influence on quality of life when they emphasized place-centered indicators (conditions) such as access to and frequency of leisure facility use along with person-centered criteria (experiences) such as leisure satisfaction and attitude. Traditionally it was assumed the more access an individual had to leisure facilities and services there would be an increase in their quality of life, thus leaving out the influence of subjective criteria, an assumption challenged by Lloyd and Auld (2001) when they wrote “… any examination of leisure and QOL should include both content (place) and
experience (person) oriented leisure variables” (p. 44-45). The overall regression model which included both place and person-centered leisure attributes accounted for 14.8 percent of the variance in QOL, with person-centered attributes being the most statistically significant predictors. Another important finding was increased satisfaction with leisure and greater levels of participation were predictive of enhance QOL. The importance of person-centered leisure variables on QOL is substantial as long as they are associated with actual behaviors such as frequency of leisure participation. In the social context, the quality of the experience was more important the frequency (Lloyd & Auld, 2002).

Recognizing the lack of empirical studies between leisure and happiness, Wang and Wong (2011) studied the influence both quantity and the quality of the experience have on the relationship between leisure and happiness. Using data from the 2007 Leisure Time and Sports Survey administered by the International Social Survey Programme (ISSP) for the United States the researchers concluded that leisure has a statistically significant influence on individual happiness and the quality of leisure is more important than the quantity. More specifically, “It seems that more free time does not necessarily increase happiness. Instead, leisure activities, satisfaction from leisure activities, and the meaning of leisure to individuals play a much more important role in determining happiness” (Wang & Wong, 2011). In an international context, Wang and Wong (2014) found that the amount of time spent engaged in leisure activities was not as important as leisure’s role in helping individuals find self-fulfillment and social interaction. Additionally, they found that the frequency of experiencing leisure activities
that are associated with being happy increases one’s level of happiness. For example if someone never listens to music their predicted probability of feeling very happy is 16.95 percent where as it is 23.45 percent for an individual who listens to music daily.

Bailey and Fernando (2012) looked at the impact of project-based and routine based leisure on meaning and happiness. Project-based leisure is a short-term experience that is done one time or occasionally that involves a complicated and creative undertaking. For their study, a 10-day alternative spring break service trip was used. Routine leisure consists of activities an individual participates in frequently and maybe part of their weekly or daily routine. The project-based volunteer travel experience used by Baily and Fernando (2012) did not significantly influence happiness, while routine leisure strongly predicted happiness. The results on the impact of project-based leisure is conflicting as participants on river rafting trips as short as three days indicated having an “extraordinary experience” which is directly related to transcendent experience and happiness (Arnould & Price, 1993). The difference could be the location as “… time spent outdoors emerged as the strongest direct predictor of happiness. This outdoor time was not associated with a particular activity, but did require a minimum exposure of 20 minutes. Even a short span of time spent outdoors may improve subjective well-being if enjoyed on a regular basis” (Bailey & Fernando, 2012, p. 150).

Active and passive leisure.

As previously mentioned leisure experiences are often classified as either being active or passive (Henricksen & Stephens, 2013; Tkach & Lyubomirsky, 2006). Previous research has shown a positive relationship between physically active leisure such as
sports and exercise and SWB (Tkach & Lyubomirsky, 2006). Caunt et al. (2013) concluded happy people are those who enjoy satisfying and preferably active leisure pursuits. Passive activities such as gaming are negatively correlated with life satisfaction while active leisure such as exercising was positively associated with life satisfaction (Henricksen & Stephens, 2013). In fact, as participants increased their gaming the more dissatisfied they became with their life (Rodríguez et al., 2008). Similar to Rodríguez and his colleagues (2008) findings, Lloyd and Auld (2002) found that individuals participated in media activities the most frequently but unlike other studies, they found it was a positive and statistically significant determinant of QOL. However, as gaming continues to evolve and become more dynamic, interactive, and cognitively challenging it maybe one day considered active leisure by researchers.

In terms of behavioral activities, ones that reflect a person’s actions, physical activity was the most commonly mentioned component of an individual’s happiness recipe followed by meditation and mindfulness. Individuals who mentioned engaging in more behavioral activities tended to demonstrate higher levels of happiness (Caunt et al., 2013). Active leisure but not passive leisure predicts global happiness (Tkach & Lyumbomirsky, 2006) and often includes a social aspect which could help account for its impact (Caunt et al., 2013).

Nash’s (1960) assertions around the influence of active versus passive leisure play in individuals lives are validated in the literature connecting leisure participation with happiness as active leisure is strongly and positively correlated with happiness while passive leisure is negatively correlated with happiness (Wang & Wong, 2014, 2011).
However, in the context of leisure serving as a recovery experience from work, Sonnentag (2001) found that low-effort activities had a positive relationship with well-being. The finding might be a consequence of a stressful and low-control work situation or a physically demanding work environment both of which would require and individual to find activities that do not use the same resources in their leisure as required in their work environment. The effort-recovery model (Meijman & Mulder, 1998) is the theoretical framework that can be used to explain this phenomenon, which will be discussed later in the chapter.

**Psychological Outcomes of Leisure**

As previously stated one of leisure’s major roles is to serve as a development tool for individuals in society (Allen & Barcelona, 2011; Kleiber, 2001). One of the ways in which leisure not only contributes to personal development but individual happiness is through fulfilling psychological needs (Kuykendall et al., 2015; Newman et al., 2014; Tinsley & Eldredge, 1995; Tinsley & Tinsley, 1986). Ryff and Keyes (1995) proposed a multidimensional model of psychological well-being consisting of six distinct dimensions which included autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance, which can be increased and maintained with positive activity changes (Sheldon & Lyubomirsky, 2006). Tinsley and Tinsley (1986) recognized that when individuals’ psychological needs are satisfied through their leisure experiences there is a positive effect on physical and mental health and life satisfaction. This connection led Tinsley and Eldredge (1995) to conclude, “…the needs satisfied by participation in a leisure activity is one of the most important psychological
attributes of the activity” (p. 123). The importance of the psychological outcome was also illustrated in Csikszentmihalyi and LeFever’s (1989) study which found the quality of the experience was more affected by being in flow than the form or type of activity.

As previously illustrated through Lloyd and Auld (2002) and Rodríguez et al. (2008) individuals’ subjective value, also known as leisure satisfaction, of leisure has a significant influence on happiness thus it is important to understand what aspects of leisure participation, beyond activity and place-centered attributes, influence leisure satisfaction. Both studies indicated the positive influence of person and need centered elements of leisure participation on happiness which illustrates the need to further understand what aspects of the subjective component of leisure influences SWB.

One model that attempts to connect key psychological outcomes of leisure participation to SWB through a variety of psychological perspectives is the DRAMMA model (see Figure 1) (Newman et al., 2014). The five psychological mechanisms articulated in the DRAMMA model are detachment-recovery, autonomy, mastery, meaning, and affiliation, which facilitate SWB through leisure satisfaction. Kleiber (2001) in his essay, Developmental Intervention and Leisure Education: A Life Span Perspective, recognizes leisure’s role in facilitating the components outlined in the DRAMMA model when he expressed that through leisure participation a task takes on “special significance” (meaning), provides context for life through “disengagement and relaxation” (detachment and recovery), must be “intrinsically enjoyable” (autonomy), allows for “identification with others” and “connecting intimately with other” (affiliation). Seligman (2011) well-being theory aligns closely with the DRAMMA
model as it proposes that if an individual experiences meaning, accomplishment, which aligns with mastery, positive relationships, engagement, and positive emotion lead an individual to flourish. The role of physical activity on well-being is so important that Seligman (2011), stated, “At least half of positive psychology occurs below the neck…” (p. 69). Brajša-Žganec, Merkaš, and Šverko (2011) noted that leisure activities play an important part in the promotion of SWB as they provide opportunities to “meet life values and needs” by providing opportunities to build social relationships, acquire additional skills, and experience positive emotions. More generally, as individual participation in recreation increased through which their perceived needs are met the higher SWB they reported (Lloyd & Auld, 2002; Rodríguez et al., 2008). The World Health Organization (WHO) identified six domains, two being psychological and social relationships, that contribute to an individual’s quality of life (QOL). The WHO also found that participation in and opportunities for recreation/leisure actives was a statistically significant contributor to QOL (The WHOQOL Group, 1998). Sheldon et al. (2001) went so far as to conclude, “Psychological needs are evolved desires that can be found within every member of the human species” (p. 336).

**Detachment-recovery.**

Driver, Tinsley, and Manfredo (1991) laid the groundwork for understanding the psychological needs associated with leisure participation, as they believe individuals participate in leisure activities in order to fulfill needs that went unmet in other areas of their life. The concept of detachment-recovery is broken down into psychological detachment and relaxation. Psychological detachment is more than being physically
away from work as it emphasizes that ability to psychologically disengage from work during off-job time and is accomplished when, “one stops thinking of or ruminating about job-related problems or opportunities” (Sonnentag & Bayer, 2005, p. 395). Relaxation is often associated with leisure activities as it provides opportunities for an increase in positive affect and low activation (Sonnentag & Fritz, 2007). Relaxation oriented activities tend to be familiar and routine, allowing individuals to escape the stress of novelty. Additionally, people expect to experience relaxation from activities that are not challenging, require little physical and intellectual effort, and require little social demand (Tinsley & Eldredge, 1995). Sonnentag and Fritz (2007) concluded, “These diversionary strategies, particularly detachment from work and relaxation-oriented strategies should be useful for recovery because they imply that no further demands are made on functional systems called upon during work” (p. 205). For this study the concept of detachment-recovery is the degree to which an individual is able to utilize leisure to detach and recover, both psychologically and physiologically, from work and other obligations (Newman et al., 2014).

It is important to understand the conceptualization of recovery in order to contextualize detachment-recovery in its relationship to leisure and SWB. Recovery refers to the ability of an individual’s functional systems to return to pre-stressor levels after it has been put through a stressful experience. Recovery and therefore detachment-recovery is situated with the theoretical frameworks of conservation of resources and effort-recovery (Sonnentag & Fritz, 2007). Fredrickson’s (2001) Broaden-and-Build Theory (B&B) also provides a framework to understand detachment-recovery and SWB
as it utilizes positive emotions as a contextual foundation to build resources for future use.

The conservation of resources theory (Hobfoll, 1989) assumes that people attempt to build, retain, and protect their resources (e.g., objective, conditions, personal characteristics, energies) and that the principle ingredient in stress is the loss of or the prevention of loss of these resources (Hobfoll, 2001) which may intern negatively affect health and well-being (Sonnetag & Fritz, 2007). In order to recover from stress, individuals must restore their personal resources such as self-esteem and vigor or gain new resources (Oerlemans, Bakker, & Demerouti, 2014). Leisure can build up resources to overcome stress at work and in life in order to improve well-being (Newman et al., 2014).

The effort-recovery model (Meijman & Mulder, 1998) offers a theoretical basis for understanding the need for recovery as the model suggests that engaging in activities that draw on the same cognitive and physical resources used at work will encumber the recovery process. In the context of leisure the effort-recovery model states that leisure activities should not draw on the same resources used during work in order to enhance recovery (Newman et al., 2014). Specifically recovery refers to the conscious emotional state of an individual’s need to take a break from the demands of work and stress producing home activities (Sonnetag & Zijlstra, 2006).

Utilizing the broaden and build theory of positive emotions (Fredrickson, 2001) is another way to understand how detachment-recovery can facilitated happiness. B&B theory of positive emotions states that positive emotions can negate the effects of
negative emotions as they are fundamentally incompatible, which should facilitate recovery. In addition positive emotions allow for building of personal resources by broadening ones thought actions leading to enhanced well-being (Fredrickson, 2001, 2004).

Both the Effort-Recovery Model and the Conservation of Resources Theory offers up an understanding how the recovery process works by suggesting,

First, it is important to refrain from work demands and to avoid activities that call upon the same functional systems or internal resources as those required at work. Second, gaining new internal resources such as energy, self-efficacy or positive mood will additionally help to restore threatened resources. (Sonnentag & Fritz, 2007, p. 205)

Several factors such as high workload, emotional dissonance, and a limited work-home boundary contributed to significantly reduced psychological detachment from work which in turn leads to emotional exhaustion and a need for recovery (Sonnentag, Kuttler, & Fritz, 2010). According to Wang and Wong (2011) the predicted probability of individuals feeling ‘very happy’ is 43 percent if they never think about work during their free time, whereas it drops to 30 percent if individuals very often think about work. When opportunities for detachment-recovery are reduced stress increases, poor physiological occurs, and there is a reduction in an individual’s well-being.

The recovery experience literature has helped to establish a relationship between detachment-recovery and SWB. Stress tends to impair well-being by increasing depressive symptoms, health related problems and burnout, while recovery experiences
help relieve stress thus contributing to psychological well-being (Sonnentag & Fritz, 2007). When looking at the effect nighttime recovery experiences had on morning positive activation, which is a state of high positive affect, detachment and relaxation had a moderate effect (Sonnentag, Binnewies, & Mojza, 2008). One possible explanation for this finding is the positive relationship between individuals’ ability to detach from work during the evening and positive mood at bedtime (Sonnentag & Bayer, 2005). When examining the relationship of the factors in the Recovery Experience Questionnaire with life satisfaction, Sonnentag and Fitz (2007) found that relaxation and detachment were positively related to life satisfaction. Poor recovery experiences has a negative effect on psychological well-being, while psychological detachment had the strongest relationship with impaired well-being indicating that it might be the most relevant recovery experience (Sonnentag & Fritz, 2007). Research has also shown recovery experiences, such as restful vacations, have a positive relationship with life satisfaction (Strauss-Blasche, Ekmekcioglu, & Marktl, 2002). Lounsbury and Hoopes (1986) found that satisfaction with the recovery experience increased their life satisfaction, where as those who were not satisfied had a decrease in life satisfaction.

Individuals with positive recovery experiences will be more satisfied with their leisure time and consequently have increased life satisfaction (Newman et al., 2014; Sonnentag & Fritz, 2007). The structural and subjective components of leisure play a role in understanding how leisure, detachment-recovery, and SWB are connected. It is not enough to just look at all out of work and life maintenance activities (structural) as opportunities for detachment, but how individuals feel about engaging in such activities
(subjective). Oerlemans et al. (2014) looked whether the subjective experience influenced an individual’s daily recovery from work. The results showed during non-work time household and work-related activities were negatively related to recovery when individuals experience low levels of happiness, but not when happiness was high when involved in the activities. Previous research showed household activities had no effect on situational well-being (Sonnentag, 2001). Social and physical activities were associated with higher levels of recovery when individuals experienced happiness during the activities, but they are harmful to recovery when low levels of happiness are experienced. In other words, it is not the time spent in non-work activities that are important but how one feels about being involved in such activities that influences their recovery (Oerlemans et al., 2014). Similar results can be seen in the research around vacation experiences as individuals who did not have satisfying vacation experiences and experienced lower levels of recuperation had a decrease in life satisfaction when confronted with work stress (Strauss-Blasche et al., 2002). Individuals who indicated their job was a central part of their life interest showed a decrease in life satisfaction (Lounsbury & Hóopes, 1986), which can be explained by lack of leisure opportunities. When an individual perceives having less opportunities for leisure, as a result of long work hours, they reported an increase in fatigue and a decrease in well-being (Blasche, Arlinghaus, & Dorner, 2014). Engagement in work related activities during leisure time had a negative effect on an individual’s situational well-being, which is an overall evaluation of one’s present state, whereas physical and social activities had a positive effect (Sonnentag, 2001).
Measuring recovery experiences, specifically detachment-recovery has seen more attention recently. Before the development of the Recovery Experience Questionnaire (REQ) (Sonnentag & Fritz, 2007) the construct was measured by instruments developed for a specific study. For instance day level recovery has been measured by three items developed by Sonnentag (2003) in a study looking at recovery, work engagement, and proactive behavior. In addition, the same items were used in a study looking at vigor and day-specific work-load (Sonnentag & Niessen, 2008) and when looking at happiness and recovery (Oerlemans et al., 2014). It was not until Sonnentag and Fritz (2007) developed the REQ that recovery experiences could be fully measured. The REQ has four subscales that include psychological detachment, relaxation, mastery, and control. The REQ and it subscales have been used in studies to measure recovery experiences in various contexts such as leisure and sleep (Sonnentag et al., 2008) along with job stressors and emotional exhaustion (Sonnentag et al., 2010). In addition the REQ subscales have been used in other studies instead of the whole questionnaire (Sonnentag et al., 2010).

**Autonomy.**

The psychological outcome of autonomy is deeply rooted in the field of psychology and has played an important role in recreation and leisure studies. Autonomy, along with two other components in the DRAMMA model, mastery and affiliation, has been extensively explored under the overarching construct of intrinsic motivation (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b). In particular Ryan and Deci (2000a, 200b) have looked at the conditions that elicit and sustain as opposed to
cause intrinsic motivation, which they call Self-Determination Theory (SDT). Ryan and Deci (2000a) emphasized the role of SDT in intrinsic motivation when they wrote:

> Self-Determination Theory is specifically framed in terms of social and environmental factors that facilitate versus undermine intrinsic motivation. This language reflects the assumption that intrinsic motivation, being an inherent organismic propensity, is catalyzed (rather than caused) when individuals are in conditions that conduce toward its expression. (p. 58)

In other words SDT is concerned with the motivation behind an individual’s choice and the degree to which their behavior is self-motivated or self-determined. According to self-determination theory, the basic psychological needs of autonomy, competency, and relatedness are innate, universal, and important in all domains of a person’s life (the latter two will be discussed later in the chapter). A mini-theory within SDT, basic psychological need theory (BPNT), specifies that autonomy, competence, and relatedness needs must be satisfied in order to promote well-being (Deci & Ryan, 2000; Ryan & Deci, 2000b). Sheldon and Niemiec (2006) found that the three psychological needs as proposed by SDT accounted for 44 percent of the variance in SWB.

In particular, the requisite for autonomy refers to the sense of choice and volition in the regulation of behavior. Autonomy is explained by an individual’s desire to have a control in determining one’s own behavior, activities are self-chosen and in line with intrinsic interests (Deci & Ryan, 1985). At its root, autonomy appeals to an individual’s sense of freedom, the ability to choose one’s own pathway and govern oneself (O’Donnell, Chang, & Miller, 2013). In the leisure context autonomy is defined as the
degree to which an individual freely chooses to participate in a leisure activity (Newman et al., 2014). Autonomy is an inherent component of leisure because for an activity to be considered leisure an individual must be free from constraints and motivated by internal forces (Archibald, 2008). In addition, for most individuals leisure activities are voluntary, self-initiated or determined, and based on an individual’s own choice (Leversen et al., 2012).

Kuykendall and her colleagues (2015) emphasized the connection between SWB and leisure through the psychological features of intrinsic motivation and perceived freedom, both of which have been highlighted by self-determination theory (Ryan & Deci, 2000b). Individuals who have high levels of autonomy have greater levels of positive affect and less likely to experience negative emotions (Ryan & Deci, 2000b). When compared with other psychological needs such as self-esteem, self-actualization, and security, autonomy was identified as one of the most important psychological needs (Sheldon, Elliot, Kim, & Kasser, 2001). For adolescents, participation in leisure activities helped develop a sense of autonomy (Leversen et al., 2012). Autonomy’s role in leisure has also been studied as it relates to leisure meaning (Porter, 2009; Schulz & Watkins, 2007), detachment from work (Sonnenstag & Fritz, 2007), frequency of participation (Leversen et al., 2012), leisure engagement (Kuykendall et al., 2015), sport (Lundberg, Groff, & Zabriskie, 2010) and physical activity (Ntoumanis, 2005). Finally, the leisure and well-being model (Carruthers & Hood, 2007) is based on autonomy being an essential component of leisure and when satisfied leads to an increase in SWB.
Ryan and Deci’s (2000, 2001) self-determination theory offers up a foundation to understand autonomy as it relates to SWB. Individuals want to feel that their activities are self-endorsed. When individuals were asked to reflect on deeply satisfying experiences they think of experiences where they felt a strong sense of autonomy (Sheldon et al., 2001). In Sheldon et al.’s (2001) study, autonomy was predictive of positive affect ($\beta = .16$) and accounted for 17 percent of the unique predictive variance in positive affect. In an adolescent population autonomy satisfaction had a direct positive effect on life satisfaction (Leversen et al., 2012). In a sample of college students, perceived autonomy was predictive of happiness ($\beta = .33$) and also mediated the relationship between attribution style and happiness (O’Donnell et al., 2013). As people age they tend to have a greater sense of autonomy, thus in a sample of older Americans the greater sense of felt autonomy while engaged in social duties the higher level of SWB they reported (Sheldon, Kasser, Houser-Marko, Jones, & Turban, 2005). Across four studies, using a diverse set of methodologies and measures, autonomy was found to be positively associated with SWB with a correlation of .55 and a standardized coefficient of .20 (Sheldon & Niemiec, 2006).

The connection between autonomy, leisure, and SWB is well established in the literature and has been consistently measured quantitatively. One popular way to measure autonomy is through the Emotional Autonomy Scale (Steinberg & Silverberg, 1986). The problem with this instrument for the current study is that emotional autonomy is concerned with adolescents relinquishing emotional dependence on their parents. Another measure for autonomy is the Young Adult Autonomy Scale (YAA) (O’Donnell
et al., 2013), which looked at several different domains such as moral decisions, education, family, and personal relationships. Weissenger and Bandalos (1995) developed a scale to measure intrinsic motivation in leisure which comprises four subscales: self-determination, competence, commitment, and challenge. Even though the instrument demonstrated strong psychometric properties, it does not significantly distinguish between the three constructs of SDT to make it a viable measure for this study. Due to SDT’s popularity, several instruments have been developed to measure the three constructs that make up the theory in a general context and specific domains. The most popular was developed for the workplace, the Basic Need Satisfaction at Work Scale, and has been used in several studies (Deci et al., 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). The other highly used scale is the Basic Psychological Needs Scale (BPNS) which was developed from the General Need Satisfaction Scale (GNSS) and developed by Gagne (2003) by modifying the Basic Need Satisfaction at Work Scale. Both scales have been modified for use in various contexts for physical activity (Ntoumanis, 2005), sport (Lundberg et al., 2010; Readdy, Raabe, & Harding, 2014), and leisure (Leversen et al., 2012). Both scales and their subscales have shown strong levels of validity and reliability with a variety of different populations.

**Meaning.**

Leisure participation often involves personal identification and personal expressiveness, especially when in the context of service to others, working with youth, community action, and environmental advocacy. Recreation and leisure experiences provide a setting for individuals to create meaning, thus increase their quality of life
(Iwasaki, 2007). Meaning refers to the means and process where individuals gain something important or valuable in life through leisure (Iwasaki, 2008; Newman et al., 2014). Porter, Iwasaki, and Shank (2010) defined meaning as, “… socially and contextually grounded psychological/emotional experience that holds inner significance for an individual” (p. 169). Eakman and his colleagues (2010) used the phrasing, “personally fulfilling” when asking individuals to rate which activities were meaningful. Interestingly, the discovery of meaning is associated with happiness ($r = .644$) while the search for meaning was unrelated, with the former often achieved through personal reflection (Bailey & Fernando, 2012).

Individuals who indicate their leisure experiences allow them to become the person they are report higher levels of happiness (Wang & Wong, 2011). Through his research examining leisure and quality of life in a multicultural context, Iwasaki (2007) concluded, “Overall, an overarching theme common to almost all cultural context examined above [Asian, Middle-East, and Indigenous] appears to be the role of leisure-like activities as a context or space for creating meanings which then help to promote the quality of people’s lives” (p.251). When engaging in leisure pursuits positive emotions are a major source of meaning making (Iwasaki, 2007; Porter, 2009). Fredrickson’s (2001) broaden and build theory of positive emotions suggests that positive emotions result from finding meaning in an experience or activity and critical to optimal well-being. The link between meaning and positive emotions can be cyclical in nature as illustrated when Fredrickson (2001) wrote:
It is important to note that the relation between positive meaning and positive emotions is considered reciprocal: Not only does finding positive meaning trigger positive emotions, but also positive emotions, because they broaden thinking, should increase the likelihood of finding positive meaning in subsequent events (p. 223).

Developing meaning enhances the good in one’s life and integral to happiness and fulfillment (Baumeister & Wilson, 1996). Selection, Optimization and Compensation theory (SOC) (Baltes & Baltes, 1990) suggests that as individuals age they actively select meaningful activities or goals they want to participate in and achieve. Individuals then optimize existing skills and knowledge or compensate by obtaining new skills and knowledge in order to achieve their goals or participate in the activity (Baltes & Baltes, 1990). Goal achievement has been shown to be an important HIB and strongly influences happiness (Tkach & Lyubomirsky, 2006; Warner & Vroman, 2011). Eakman et al. (2010b) further illustrated, the connection of meaning and SOC when they wrote, “…an explicit component of the SOC model of aging is an active practice on the part of the individual to maximize health and life satisfaction through selecting and investing in highly valued activities” (p. 209).

Meaning can be developed through creating work, having a powerful experience or interaction, pursuit of important goals, development of a intelligible life narrative, and self-transcendence (Bailey & Fernando, 2012). Leisure is a catalysis for developing meaning as it facilitates positive emotions, positive self-identity, social connections, and opportunities for learning (Bailey & Fernando, 2012; Iwasaki, 2007). Few studies have
identified meanings that individuals gain through leisure activities (Porter, Iwasaki, & Shank, 2010). Donald and Havighurst (1959) were the first researchers to explore meaning through leisure and identified twelve meanings which include: connecting with friends, benefiting or contributing to society, gaining more standing with others, making one popular, helping financially, chance to achieve something, welcoming change from work, new experience, making time pass, self-respect for doing it, just for the pleasure of it, and to be creative.

Several years later Ragheb (1996) based on various psychological theories identified seven meanings through leisure including physical, mental, social, spiritual, esteem, self-actualization, and locus of control. Iwasaki (2007, 2008) incorporating a global and multicultural view identified several mechanisms that facilitate meaning through leisure participation. Regardless of cultural contexts, the pathways include positive emotions, positive identity, social connections, and competency development across the lifespan. More recently, through a comprehensive literature review connecting and belonging, identify, control and power, autonomy, and mastery were identified as pathways to meaning through leisure experiences (Porter, 2009; Porter et al., 2010).

The connection between meaning, leisure, and SWB is well established in the literature but quantitatively measuring meaning through leisure is more elusive. Schulz and Watkins (2007) highlighted the challenges with quantitatively measuring meaning such as formulating a construct definition of meaning, developing operational indicators that accounts for a subjective view of meaning as well as a theoretical constructs, and accounting for the influence of situational contexts. Watkins’ (1999) phenomenological
A study of leisure meanings produced four categories of leisure meaning (i.e., passing time, exercising choice, escaping pressure, and achieving fulfillment) which served as the basis for Schulz and Watkins’ Leisure Meaning Inventory (LMI). Even though the LMI was developed in a methodologically sound manner, “the proportion of explained variance in the final factor structure of 54 percent, suggests the scale does not identify or explain other factors of leisure meaning” (Schulz & Watkins, 2007, p. 493). Porter (2009) developed the Leisure Meanings Gained Scale (LMGS) in both short form, 28 items, and long form 48 items. Iwasaki and her colleagues (2013) used the short form to look at leisure meanings gained by persons with mental illness and demonstrated strong reliability. Unfortunately, the instrument is not currently published and available for public use.

One measure of meaningful activity participation that has received a significant amount of validation is the Engagement in Meaningful Activities Survey (EMAS) developed by Goldberg, Brintnell, and Goldberg (2002) to help assess the relationship between meaningful activities and quality of life, the latter being used as an index of life satisfaction. The instrument was first used on individuals with mental illness in an occupational therapy setting to assess the degree to which activities are valued by one’s social or cultural group, align with their value system, and provide evidence of mastery. The EMAS had good internal consistency with a Cronbach alpha of .84 and moderate test-retest reliability of .69. Eakman has since tested the EMAS for its psychometric properties on college students (2011), an age-diverse sample (2012), and with his colleagues on older adults (2010a). The test-retest reliability was moderate at .56 with
older adults and adequate at .71 with college students. Eakman et al. (2010a) suggest that because meaning is a changeable phenomenon, test-retest reliability may be low. In addition, the EMAS had good internal consistency at .89 with older adults and .88 with college students. Another important finding of Eakman’s work, for this study, is the positive relationship between the EMAS and the GNSS (Eakman, 2011, 2013).

**Mastery.**

Competency and mastery are terms that are used interchangeably (Kleiber, 2001; Ryan, Rigby, & Przybylski, 2006) to describe the degree to which a leisure activity challenges and provides learning opportunities for individuals to improve their skill and achieve a new level of success (Newman et al., 2014). Kleiber (2001) described developing mastery through leisure as the developmental task of becoming capable by establishing competence and further emphasized its importance when he wrote, “Establishing competence, feeling able to do things, being recognized by others as one who has skills or is skilled in some way or another, is a task that takes on special significance at different points throughout the life course” (p. 6). Mastery experiences challenge an individual without overextending their capabilities (Sonnentag & Fritz, 2007).

Newman and his colleagues when describing the concept of mastery as it relates to SWB utilized Csikszentmihalyi’s (1990; Csikszentmihalyi & LeFevre, 1989) concept of flow and Stebbins (1992) serious leisure. Flow is a mental state that requires the appropriate balance of skill and challenge that when achieved, individuals enter a state of total absorption and concentration that leads to optimal experience. Flow has been linked
to happiness as it relates to money and leisure (Csikszentmihalyi, 1999), work and leisure (Csikszentmihalyi & LeFevre, 1989), and adventure recreation (Tsaur et al., 2013).

Serious leisure focuses on the degree to which hobbyist, volunteers, or amateurs pursue an activity to a point they find a “career” in their chosen activity that allows for the acquisition of special skills, knowledge, and experience. When individuals invest a high level of commitment, effort, and skill in a leisure pursuit it can promote self-enrichment, actualization, expression, image, and gratification (Gould, Moore, McGuire, & Stebbins, 2008), which led to greater life satisfaction and is tied with mastery experiences (Newman et al., 2014).

Another theoretical foundation linking competency development through leisure experiences to SWB is within the context of extraordinary experiences. Extraordinary experiences are highly memorable, special, and emotionally charged activities (Jefferies & Lepp, 2012) that involve individuals communing with nature, friends, family, and strangers while allowing for personal growth and renewal of self (Arnould & Price, 1993). When challenging recreation activities are coupled with feelings of accomplishment they contribute to extraordinary experiences (Jefferies & Lepp, 2012). When personal growth and renewal of self resulted in the development of new skills, individuals’ experienced feelings of happiness (Arnould & Price, 1993; Jefferies & Lepp, 2012). Extraordinary experiences have been characterized as transcendent and associated with strong positive emotions. In a study involving mountain climbers transcendent experiences were positively related to happiness (Tsaur et al., 2013).
Leisure’s influence on happiness as it relates to competency development is further illustrated as Iwasaki (2007) found, in all the cultural contexts he examined, that leisure makes a key contribution to learning across the lifespan. Individuals who use their leisure to develop new skills report higher levels of happiness (Wang & Wong, 2014, 2011) and when asked to reflect on deeply satisfying experiences they think of experiences where they felt a strong sense of competence (Sheldon et al., 2001). The interest in becoming more competent is a fundamental component to intrinsically motivate participation, especially in activities that encourage skill development (Kleiber, 2001). Ryan and Deci’s (2000a, 2001) self-determination theory indicates individuals want to feel effective in their activities by developing competence, which is innate, essential, and universal. The basic psychological need of competency must be satisfied for an individual to experience happiness (Ryan & Deci, 2000b), which is enhanced through positive feedback (Deci & Ryan, 2000). When a person is focused on personal growth through self-development and learning they are highly likely to experience greater competence (Ryan, Veronika, & Deci, 2008). The deep rooted need for competence is further illustrated when Deci and Ryan (2000) wrote, “Interestingly, it is precisely the open and yet interactive nature of the need for competence that makes it such an adaptive and deeply structured feature of human nature” (p. 253).

Beyond the theoretical connection between competency, leisure, and SWB the relationship has been empirically tested in several studies. In Sheldon et al.’s (2001) study competence or mastery was predictive of positive affect ($\beta=.37$) and accounted for 12 percent of the unique predictive variance in positive affect. Using a combination of
survey instruments and daily diaries, participants with higher levels of perceived competency were highly correlated with well-being ($r = .30$) and competency accounted for 13 percent of the variance in daily well-being (Sheldon, Ryan, & Reis, 1996). A pilot program at a hospital in Scotland for patients with cardiac problems utilized outdoor activities one hour per week as part of their rehabilitation treatment. As a result patients showed better overall mood and an increase in positivity and valued the new skills they gained through participation (McNish, 2014). In an adolescent population the need for competence through leisure activities had the strongest correlation with life satisfaction ($r = .33$). Out of the three variables of autonomy, relatedness, and competency, the latter had the most robust parameters in the structural equation model with the direct relationship between leisure participation and competence being $r = .32$ and competence satisfaction and life satisfaction being $r = .31$. Thus the variable of competence fully mediated the relationship between activity participation and life satisfaction (Leversen et al., 2012). Across four studies, using a diverse set of methodologies and measures, the construct of competency was found to be positively associated with SWB with a correlation of $.60$ and a standardized coefficient of $.35$, both of which were the highest among the three SDT variables (Sheldon & Niemiec, 2006). Sonnentag has done extensive research looking at recovery experiences from work and in particular, how leisure can facilitate recovery experiences. One such recovery experience is opportunities for mastery which has been shown to be a strong predictor of positive activation which is a state of high positive affect and arousal (Sonnentag, Binnewies, & Mojza, 2008). Mastery experiences during non-work times, especially the pursuit of a sport, help increase
positive mood. Mastery in non-work environments, experiences were also related life satisfaction ($r = .25$) thus, “Individuals with favorable recovery experiences will tend to be more satisfied with their leisure time which in turn will be positively related to life satisfaction” (Sonnentag & Fritz, 2007, p. 210).

An important connection to not overlook is skill development which was highly correlated with autonomy indicating a potential relationship between the two variables (Rodriguez et al., 2008). Cognitive Evaluation Theory (CET) can be used to explain the relationship. CET was introduced in 1985 by Deci and Ryan as a sub-theory within SDT, focusing on the relationship between competence and autonomy as they relate to intrinsic motivation. CET suggests that competence will not enhance intrinsic motivation unless autonomy is present (Ryan & Deci, 2000a, 2000b). Thus according to Ryan and Deci (2000b), “… people must not only experience competence or efficacy, they must also experience their behavior as self-determined for intrinsic motivation to be in evidence” (p. 70).

The connection between mastery, leisure, and SWB is well established in the literature and has been consistently measured quantitatively. Based on Newman et al (2014) support for mastery in the DRAMMA model, using flow to measure mastery would have its merits as the construct has been measured by the Flow State Scale (FSS) (Jackson & Marsh, 1996) and the Dispositional Flow Scale (DFS) (Jackson & Eklund, 2002) both of which have shown strong psychometric properties (Jackson, Martin, & Eklund, 2008). In addition, flow has its roots in recreation (Csikszentmihalyi, 1990) and key concept in positive psychology (Seligman & Csikszentmihalyi, 2000). However,
highlighting Newman et al.’s (2014) own recognition that flow “taps into the mastery experience” and is a psychological state that requires the balance of challenge and skill, and is characterized by the absorption into an activity (Jackson et al., 2008) flow does not seem to fully encompass the definition and the components of mastery put forth by Newman and his colleagues. Newman et al. (2014) highlights, that mastery experiences provide learning opportunities, challenge, obtaining and honing skills, and overall betterment of skills through leisure activities. None of the aforementioned components are directly associated with a psychological state or rely primarily on a balance of challenge and skill which characterize flow. In addition, both flow scales measure flow and not mastery whereas other measures specifically measure the construct of mastery. One such measure is the competency subscale used in the Basic Psychological Needs Scale (BPNS) which as previously mentioned was developed by Gagne (2003) by modifying the Basic Need Satisfaction at Work Scale. Both scales have been modified for use in various contexts for physical activity (Ntoumanis, 2005), sport (Lundberg et al., 2010; Readdy et al., 2014), and leisure (Leversen et al., 2012). In addition, the scales and their subscales have shown strong levels of validity and reliability with a variety of different populations.

**Affiliation.**

Connecting with others is a powerful need throughout people’s lives (Baumeister & Leary, 1995) which leisure can play a significant role in facilitating as Kleiber (2001) pointed out, “Shared interests are often an important bonding influence in a relationship as they create mutuality of experience, and enjoyment is usually a large part of the
experience” (p. 8). The construct of affiliation, relatedness, or interpersonal attachment refers to the desire to connect with others by relating to, caring for and to be cared for, and involvement with the social world as a whole (Baumeister & Leary, 1995; Deci & Ryan, 2000; Leversen et al., 2012). Specifically in the context of leisure, affiliation is the ability of an individual to socially connect with others through leisure experiences (Newman et al., 2014). Leisure provides an opportunity for individuals to be with other people, feel respected, cooperate with others, reinforce friendships, and provide shared experiences (Leversen et al., 2012).

Several theoretical frameworks such as activity theory, leisure well-being model, and SDT support the connection between leisure, affiliation, and SWB. Activity theory was referenced the most out (27 times) of a quantitative summary of theories linking leisure to SWB (Newman et al., 2014). As previously mentioned in this chapter activity theory suggests that as one ages the greater the frequency and intimacy of activities the greater the life satisfaction and further suggests that social engagement is necessary for SWB (Havighurst, 1961; Newman et al., 2014). Rodriquez and his colleagues (2008), when studying the relationship between leisure and life satisfaction, in the context of activity and need theory, found the need for social interaction (.40) correlated the highest, along with physical fitness, with life satisfaction and predicted 19 percent of the variance in life satisfaction. The leisure and well-being model (Carruthers & Hood, 2007) suggests that through leisure experiences resources such as social connectedness are built and contribute to positive affect, emotions, and thus overall well-being. Maslow’s conception of the need for love and belongingness is essentially the same as relatedness as proposed
by Deci and Ryan’s SDT as they both address the need for interpersonal connections (Sheldon et al., 2001). Ryan and Deci’s (2000, 2001) self-determination theory indicates individuals want to develop a sense of closeness and connection with others. When individuals were asked to reflect on deeply satisfying experiences, they think of experiences where they felt a strong sense of relating to others (Sheldon et al., 2001). It is important to note that in a social environment that affords the opportunity for competence but fails to nurture relatedness it is expected that an individual’s sense of wellbeing will be lessened (Ryan & Deci, 2000b). SDT has also been linked to happiness in so far as it recognizes the role fulfilling basic psychological needs has on an individual’s happiness (Ryan & Deci, 2000b, 2001; Ryan, Veronika, & Deci, 2008).

Affiliation and SWB have a strong connection as evident in the literature, for instance of the most widely researched personality traits, the highest correlation with happiness is affiliation (Lyubomirsky, King, et al., 2005). In Sheldon et al.’s (2001) study affiliation was associated with high positive emotion ($r = .21$), predictive of positive affect ($\beta = .17$), and accounted for 12 percent of the unique predictive variance in positive affect. When college students were asked about the most satisfying event of the semester, relatedness was predictive of positive affect ($\beta = .27$) speaking to the importance of relatedness overtime. Having positive relationships and social values are necessary for long term happiness because happy people are those who are actively involved in a number of close relationships which allow them to practice their social values (Caunt et al., 2013). A rich and fulfilling social life is a vital component of what makes people happy (Capaldi et al., 2014) as happiness fosters sociability and social
activity (Lyubomirsky, King, & et al., 2005). In a study of 201 college students exploring the causes of long-term SWB through content analysis, Caunt et al., (2013) found that social relationships had the biggest impact on an individual’s happiness with 95 percent of the participants referring to the importance of social relationships. Indicating people are happier when they are around others and relationships are likely a necessary ingredient to happiness. Ultimately, individuals should give great effort to develop and maintain relationships as part of their happiness strategy.

In terms of connecting affiliation, leisure, and SWB Sheldon et al.’s (2001) study provides a foundation as relatedness emerged in a three-way tie as the most salient element of individuals’ self-reported satisfying experiences. There is a vibrant connection between happiness and the amount of satisfaction one derives from a leisure and/or recreational experiences (van Praag, Frijters, & Ferrer-i-Carbonell, 2003) especially when the activity involves a social aspect (Reyes-Garcia et al., 2009). In fact, research using longitudinal data looking at the relationship between social and solitary leisure on SWB found that only when leisure time includes a social component there is a statistically significant influence on happiness (Reyes-García et al., 2009). Lloyd and Auld (2002) found that people who engage in social activities more frequently reported higher levels of Quality of Life (QOL), which includes life satisfaction, happiness, and morale, than people who participate less often in social activities. The study also found that out of all the various leisure attributes, participation in social leisure (.195) predicted QOL better than all other variables. In Bailey and Fernando’s (2012) study of routine and project-based leisure experiences participants with higher levels of social engagement, both
Directly measuring affiliation is somewhat elusive in the literature, as most studies have measured affiliation indirectly. For instance Brajša-Žganec et al. (2011) measured the relationship between leisure activities and SWB using the Leisure Activities Scale (LAS) which was created for their study. The LAS measured frequency of participation in certain leisure activities, with each one being placed in one of three predetermined categories two of which are associated with affiliation. The problem with the LAS is does not measure affiliation as an outcome of leisure participation. Several studies utilize leisure satisfaction to examine the connection between leisure and relatedness (Lloyd & Auld, 2002; Reyes-García et al., 2009), which is theoretically sound as there is a social component to leisure satisfaction (Beard & Ragheb, 1980). One of the
few instruments to directly measure affiliation or relatedness to leisure is Basic Psychological Needs Scale which was designed to measure SDT (Deci & Ryan, 2000). Within the BPNS the subscale of relatedness is designed to directly measure affiliation as it relates to involvement in various aspects of life such as work (Deci et al., 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992), physical activity (Ntoumanis, 2005), sport (Lundberg et al., 2010; Readdy et al., 2014), and leisure (Leversen et al., 2012).

**Leisure Satisfaction**

Leisure plays a dynamic role in a person’s life and knowing how satisfaction gained from leisure experiences relates to overall happiness is an important contribution to the field (Beard & Ragheb, 1980). Having positive and satisfying leisure experiences is important as it increases the likelihood of continued participation and increases one’s happiness. One way to understand how leisure satisfaction contributes to happiness is through domain satisfaction (Cummins, 1996; van Praag et al., 2003), which is a bottom-up theory approach. A bottom-up theory suppositions that SWB is the sum of many small pleasures, and a happy life is the accumulation of these moments (Diener, 1984). Leisure, and thus leisure satisfaction as it is the affective measure of leisure experiences (Newman et al., 2014), has been included as a key life domain (Diener, 1984; Diener et al., 1999; Hribernik & Mussap, 2010). Hribernik and Mussap (2010) found that leisure is a self-contained area of life and does not share statistically significant variance with other domains of life, thus justifying it place as an independent life domain.
A bottom-up approach to SWB is based on each key life domain influencing an individual’s SWB (Diener, 1984; Kuykendall et al., 2015; Lyubomirsky, King, et al., 2005; Newman et al., 2014). Kuykendall and her colleagues (2015) proposed there are two distinct but related aspects of bottom-up theories, the psychological construct of SWB and the experienced conditions that influence SWB. The psychological construct explains the relationship between leisure satisfaction and SWB as individuals consider their satisfaction with various life domains when rating SWB. It is important to recognize that individuals evaluate specific domains higher in stages of life when it is most valued relative to other domains (Kuykendall et al., 2015). In studies asking undergraduate students to rank the importance of various life domains, participation in and opportunities for recreation/leisure was consistently ranked high (Blais, Vallerand, Brière, Gagnon, & Pehetier, 1990; Wu, 2009). The experienced condition of the bottom-up theory posits that SWB is partially influenced by life experiences and circumstances. Thus positive and negative experiences within specific domains as well as life circumstances such as age, income, health, etc… influence SWB. The DRAMMA model in this study is a bottom-up model that suggests enhancing leisure experiences can increase SWB via leisure satisfaction (Newman et al., 2014). However, it is important to recognize that bottom-up approaches to understanding SWB have not always been accepted.

There is a compelling argument in the literature for the top-down theory approach to SWB (Lyubomirsky, Sheldon, et al., 2005). The top-down approach posits that personality and genetic factors predispose an individual to being happy thus reacting to
life events in a positive manner. The top-down approach contends that this predisposition causes one to evaluate life domains more positively, which suggests that a happy person will evaluate having a better marriage, job, health, and leisure experiences (Diener, 1984; Lyubomirsky, et al., 2005). Kuykendall et al. (2015) through their research made significant strides in helping understand the balance between top-down and bottom-up theories when they stated, “Given that these processes are not mutually exclusive, our findings imply that both processes coexist… appear to account for approximately equal amounts of variance…” (p. 390).

Leisure as a significant life domain and leisure satisfaction as the global measure of leisure participation (Lloyd & Auld, 2002) has been the focus of research for sometime. Beard & Ragheb (1980) defined leisure satisfaction as, “the positive perceptions or feelings that an individual forms, elicits, or gains as a result of engaging in chosen leisure activities. It is the degree to which one is presently content or pleased with his/her general leisure experiences and situations” (p. 22). Leisure participation is seen as an antecedent of leisure satisfaction and plays a dynamic role in peoples’ lives, thus it is important to understand how satisfaction is gained through leisure experiences (Beard & Ragheb, 1980; Spiers & Walker, 2009). Leisure satisfaction was found to be one of the primary variables that contributed to continued participation in leisure activities (Searle, Mactavish, & Brayley, 1993). Individuals experience leisure satisfaction when positive feelings and perceptions are formed because of the activities they choose to participate, “However, the positive perceptions could vary concerning the factors contributing to leisure satisfaction…” (Huimei Liu & Yu, 2015, p. 162).
Several sociodemographic variables such as age, gender, income, education, religion, and health have been found to influence leisure satisfaction (Brown & Frankel, 1993; Mak, Parker, & Boley, 2003; Russell, 1990). However, other studies have shown gender and martial status do not influence leisure satisfaction (Mak et al., 2003). A study of 65 nurses found that demographic factors such as gender, age, relationship, and parental status do not have a statistically significant effect on leisure satisfaction. In studies focused on leisure, relationship status had an influence on leisure satisfaction (Hribernik & Mussap, 2010) and overall happiness (Kim, Heo, Lee, & Kim, 2015). Hribernik and Massuap (2010) concluded, “Generally, leisure satisfaction is seen to increase with age, with variations in gender and relationship status all coming together toward a similar level for people aged 66 and over” (p. 706). Beard and Ragheb (1980) recognized the potential conflict that could be found in sociodemographic variables as they relate to leisure satisfaction and pushed for further research in these areas.

Utilizing an adult sample Riddick (1986) examined the predisposing variables for leisure satisfaction. Results indicated that leisure satisfaction did not differ across age groups. Of the eight variables tested leisure resources and leisure values accounted for 9 percent of the variance in leisure satisfaction indicating a statistically significant influence. The findings are supported in the literature as leisure values were predictive of the outcomes people want from leisure (Barnett, 2013). Additionally, individual’s who highly valued leisure and where knowledgeable of its benefits had high levels of perceived QOL (Lloyd & Auld, 2002). In addition, QOL increased marginally as
satisfaction with leisure resources increased, but significantly when participation was high (Lloyd & Auld, 2002).

Besides sociodemographic variables, leisure engagement has been found to influence leisure satisfaction (Kuykendall et al., 2015). Leisure engagement encompasses both the structural and subjective components of leisure and is the extent to which one participates in leisure activities. Participation in leisure activities has been shown to have a positive relationship with leisure satisfaction, as both variables increased anxiety levels decreased (Kaufman, 1988). In addition, in a sample of 693 college students when an individual’s leisure participation and satisfaction decreased perceived boredom in leisure increased (Iso-Ahola & Weissinger, 1990). All types of leisure engagement do not contribute equally as leisure satisfaction varies according to activity type. For instance passive activities such as watch television and reading were found to be less satisfying than active leisure activities such as swimming and socializing (Di Bona, 2000). However, despite activity type the more an individual participates in leisure activities the greater one’s leisure satisfaction (Searle et al., 1993).

Even though leisure engagement contributes meaningfully to leisure satisfaction, psychological variables such as leisure motivation and attitude also enhance an individual’s overall satisfaction with their leisure experience. For instance, when looking at the relationship between leisure engagement, attitude, motivation, and satisfaction Ragheb and Tate (1993) found that affective leisure attitude directly influences leisure satisfaction more than motivation and participation. While, affective leisure attitude has a direct effect on the leisure satisfaction of individuals it also has an indirect effect
through motivation and participation. The more positive one’s leisure attitude the more likely an individual is to engage in new leisure activities (Searle et al., 1993). In a sample of 363 college students motivation for competency/mastery contributed, more than any other leisure motivation variable in the study, to leisure satisfaction (Beggs & Elkins, 2010).

In alignment with motivation and attitude is one’s level of commitment to their leisure pursuit. Studies have found that a high commitment to leisure, increases leisure satisfaction as they found their activities to be more challenging and enjoyable (Luo Lu & Argyle, 1994). Serious leisure (Stebbins, 1992) is a theoretical framework that addresses commitment. Individuals who have a serious leisure pursuit have been found to score higher in every area of leisure satisfaction than non-serious leisure participants (Liu & Yu, 2015). Liu & Yu (2015) concluded that when participants are engaged in a committed and constructive leisure activity they have greater leisure satisfaction and happiness. In contrast is Lloyd and Auld's (2002) findings that the behavioral component of leisure attitude which is the level of commitment of time, income, and effort resulted in lower perceived QOL.

In addition, to leisure attitude and motivation, personality plays a role in leisure choice and satisfaction. Lu and Argyle (1984) found that individuals with high self-esteem where more likely to volunteer, join clubs, or play sports. Where as neurotic people were more likely to engage in hobbies than participate in sports. Extraversion had a statistically significant positive correlation with leisure satisfaction, where as
neuroticism was significantly negatively correlated with leisure satisfaction (Liu, 2014; Lu & Hu, 2005).

Leisure experiences tend to elicit several elements such as enjoyment, relaxation, and freedom, and satisfaction. However, it is important to recognize not all consequences of the leisure experience are positive as Lee and Datillo (1994) found that immediately after leisure experiences individuals reported feelings of exhaustion, apprehension, nervousness, disappointment, and guilt. The authors did caution a lot of these feeling occurred during adventure activities and sports so these feelings maybe unique to those activities. In addition, the authors postulated that an individual’s feelings might change to a more positive outlook as time increases after participation. Furthermore, individual’s who had a higher level of commitment to a leisure activity had higher levels of stress because of participation. The level of stress could be a result of the correlation between challenge and stress (Lu & Argyle, 1994).

By discussing the construction of leisure satisfaction through various mechanisms and considering the effect of sociodemographic variables, it’s influence as a salient life domain has been established. Following the bottom-up theoretical approach, it is important to consider how leisure satisfaction influences happiness. Extensive research in the recreation and leisure field has linked leisure satisfaction to happiness (Argyle, 1999). In Lloyd and Auld’s study, (2002) leisure satisfaction explained a statistically significant portion of the overall variance in QOL at 7 percent. However, Lloyd and Auld’s results indicated, “… the relationship of leisure satisfaction to QOL is dependent on the frequency of leisure participation” (2002, p. 59). These findings indicate that
satisfaction is related to QOL as long they are related to actual behaviors. Supporting these conclusions is Russell’s (1986) findings with a sample of retirees that the frequency of leisure participation did not influence life satisfaction but did influence leisure satisfaction and leisure satisfaction had a positive relationship to life satisfaction. Satisfaction with leisure experiences had a statistically significant influence on life satisfaction even when accounting for various demographic variables (Lloyd & Auld, 2002).

Lu and Argyle (1994) found that all the components of leisure satisfaction laid out by Beard and Ragheb (1980), except for education, were significantly correlated with happiness. Wang et al. (2008) found the same negative relationship between education and life satisfaction in a sample of adolescents. In Liu’s (2014) study of personality, leisure satisfaction, and SWB found the relationship between leisure satisfaction and SWB was positive in every domain. Overall leisure satisfaction predicted happiness and the social aspect of leisure satisfaction predicted happiness longitudinally. Leisure satisfaction and in particular the satisfaction with aesthetic and psychological constructs had a statistically significant positive influence on QOL (Lloyd & Auld, 2002) and life satisfaction (Wang, Chen, Lin, & Wang, 2008). In a sample of 487 adults leisure satisfaction accounted for 37 percent of the variance in life satisfaction, but only .7 percent of this was unique variance. Even though the contribution is low, leisure still explained more unique variance than four of the eight existing variables in the Personal Well-being index (Hribernik & Mussap, 2010). When looking at ethnicity and leisure satisfaction on happiness Spiers and Walker (2009) found leisure satisfaction
significantly affected happiness, peacefulness, and all nine dimensions of QOL. These findings led Hribernik and Mussap (2010) to conclude, “This result also adds to the growing body of evidence that subjective leisure is more important to life satisfaction and subjective wellbeing than objective measures of leisure, and that leisure satisfaction, specifically, appears to be a powerful representation of this” (p. 703).

Various instruments have been used to measure leisure satisfaction but Beard and Ragheb (1980) developed the most widely used, the Leisure Satisfaction Scale (LSS). The LSS assesses the feelings an individual forms, elicits, or gains as a result of engaging in leisure activities, can be used as a tool for examining the use of free time, and how leisure activities can serve an individual’s needs. The theoretical basis for the LSS was derived from an extensive literature review on leisure and recreation which resulted in six subscales: psychological, educational, social, relaxational, physiological, and aesthetics (Beard & Ragheb, 1980). The following is a brief description of the benefits each subscale provides: *Psychological*—sense of freedom, enjoyment, involvement, and intellectual challenge; *Educational*—learn about themselves and surroundings; *Social*—rewarding relationship with other; *Relaxational*—Relief from stress and strain of life; *Physiological*—develop physical fitness, stay health, and weight control; *Aesthetic*—the areas in which one engages in leisure are pleasing, interesting, beautiful, and well-designed.

The LSS has strong psychometric properties as Beard and Ragheb (1980) established content validity and internal reliability (.93) by having the instrument reviewed by 160 professionals and testing the instrument on 950 respondents from a
variety of backgrounds. The LSS showed good test-retest reliability in an adolescent sample (Trottier, Brown, Hobson, & Miller, 2002). The LSS has also been used in a variety to studies including the benefits of leisure (Di Bona, 2000), leisure interests of adolescents (Trottier et al., 2002), the relationship between leisure attitude, motivation, and satisfaction (Mounir Ragheb & Tate, 1993), leisure participation and anxiety of retirees (Kaufman, 1988), personality, leisure satisfaction, and life satisfaction (Kovacs, 2007), and how ethnicity influences leisure satisfaction and happiness (Spiers & Walker, 2009). The extensive use of and strong psychometric properties of the LSS lead Beggs and Elkins (2010) to conclude, “The Leisure Satisfaction Scale has been the primary instrument of choice in measuring leisure satisfaction…” (n.p).

Summary

Happiness as a construct has recently emerged as a field of study but has been a central goal and purpose for individuals for some time. As such philosophers and psychologist have debated the varying definitions and underlying ideology of happiness. The debate between the hedonic and eudaimonic understandings of happiness will likely continue and is beyond the scope of this research. However, in practice the most commonly accepted conception of happiness is subjective well-being, which is the combination of life satisfaction, positive affect, and negative affect. By utilizing SWB, it allows researchers to look at both the cognitive and the affective states that make up happiness thus providing better understanding of the construct as a whole.

Even though the underlying philosophies of happiness are still being debated, the academic community has generally accepted the components that make up happiness. As
such an individual’s genetic set-point or range is thought to make up 50 percent of an individual’s happiness. The genetic set-point is a temporal disposition that has been measured by looking at someone’s propensity towards extraversion or neuroticism. Even when life-circumstances change, such as receiving a promotion or a substantial increase in income, an individual only has a temporary increase in positive emotions that eventually subsides and they return to their set-point. Life-circumstances account for 10 percent of an individual’s happiness and include age, education, employment, religion, money, an relationship status all have an influence on happiness, with the latter being the only one with a significant influence. The last component that makes up happiness, which accounts for 40 percent, is happiness increasing behaviors or activities. HIB’s offer the best opportunity for enhancing and maintaining increases in happiness. HIB’s are classified as cognitive, behavioral, or volitional which are distinct practices, which are freely chosen and require a degree of effort.

College students are a unique population in society and one that can benefit from understanding the role happiness increasing behaviors play in their overall happiness. College students’ self-rating of emotional health is at an all time low as a result of decreases in physical and mental health. In addition, students are reporting more social isolation and spending more time on the internet and social media than ever before, both of which have shown to decrease happiness. In addition, students have indicated wanting the college experience to help them gain self-understanding and have an expectation of for being happy. Coupled with students indicating leisure experiences being very important and spending a significant amount of time on leisure, only second to sleeping.
It only makes sense that college students would be an ideal choice in which to study the construct of happiness.

Leisure, one of the primary HIBs, has been shown through empirical research to have a positive influence on happiness. However, few studies have focused on and empirically investigated, beyond single constructs, the manner in which leisure activity participation facilitates SWB, leaving a significant gap in the literature. The DRAMMA framework is a new model and one of the first overarching theoretical attempts to link leisure and SWB. Although various components of the model have been tested independently, which created the foundation for DRAMMA, and to the author’s knowledge no study has tested the model. The DRAMMA model is based on leisure being considered one of the primary domains in life and constructed on a bottom-up theoretical framework. In this context, a bottom-up theory proposes that SWB is a cognitive and affect of assessment of each of life’s domains and the sum of the assessment would be an indication of one’s happiness. With this in mind the DRAMMA model proposes that through leisure engagement an individual gains five psychological outcomes that include detachment-recovery, autonomy, mastery, meaning, and affiliation. The degree to which the outcomes are met will influence one’s leisure satisfaction, which ultimately influences an individual’s SWB. The premise and overall structure of the model is well established in the literature so therefore the next step would be to quantitatively test the model, which is the purpose of this study.
Chapter 3: Methods

Introduction

The purpose of this chapter is to present the design and methods used in this research study of the relationship between leisure participation and SWB. The chapter will include a statement of purpose and the research questions utilized in this study. In addition, the chapter will include a review of the research design, description of the population and sample, and data collection procedures. The chapter will conclude with a summary of the data analysis procedures utilized in this study.

Existing literature, explored in Chapter Two, provides the conceptual framework and justification for this exploratory study. Research supports the positive role participating in leisure activities has on SWB (Iwasaki, 2007; Newman et al., 2014; Rodríguez et al., 2008) but few studies have focused on and empirically investigated the manner in which leisure participation facilitates SWB (Wang & Wong, 2011) particularly the psychological outcomes of leisure engagement (Tinsley & Eldredge, 1995). In order to fill in the gap this study used primary sources to collect data. Using primary data sources allows the researcher to ensure data collected is specific to the study and the data elicited will help answer the specific research questions, whereas secondary data sources restrict data collection to existing variables, limiting flexibility and broadening the scope of the study. The researcher for this study constructed a survey by utilizing several scales and subscales of established and validated instruments.
Research Design

Research questions and hypotheses.

In order to fulfill the purpose of this study, data from an electronically distributed survey (see Appendix A), was gathered and analyzed in order to answer the following research questions and corresponding null hypotheses:

1. Do the five psychological mechanisms of the DRAMMA model predict SWB?
   a. (Ho₁) There is no relationship between the five psychological mechanisms of the DRAMMA model and SWB.

2. Do the five psychological mechanisms of the DRAMMA model predict leisure satisfaction?
   b. (Ho₂) There is no relationship between the five psychological mechanisms of the DRAMMA model and leisure satisfaction.

3. Does leisure satisfaction predict SWB?
   a. (Ho₃) There is no relationship between leisure satisfaction and SWB.

4. How well does the DRAMMA model explain SWB in a college student population?
   a. (Ho₄) There is no relationship between the DRAMMA model and SWB with a college student population.

Identification of the population and sample.

Due to the researcher having access, the population for this study was students at Ohio University and the sample was comprised of undergraduate students currently enrolled at Ohio University’s main campus. Ohio University’s main campus is a 4-year
residential institution in the midwest of the United States located in Athens, OH, with a total enrollment in 2014 of 22,696 with 17,660 being undergraduate students. Ohio University is classified as a research university with “high research activity” in the Carnegie Classification of Institutions of Higher Education.

In addition to sending an email to the general student body the researcher double invited students who are more likely to be involved in active leisure activities. Specifically, students who have taken a Recreation Studies class or a Physical Activity and Wellness class during the academic year 2015-16 were sent a follow-up email soliciting their participation. The reason for the double invite was to ensure that the data collected adequately represents active and passive leisure as Hickerson and Beggs (2007) found that college students chose passive leisure (36%) more frequently than active leisure activities such as outdoor adventure activities (15%), competitive team sports (27%), and individual sports (22%). College students also tend to engage in passive leisure activities as part of their HIB more so than active leisure (Tkach & Lyubomirsky, 2006). Additionally, Hickerson and Beggs (2007) found that 78 percent of females preferred passive leisure activities. One particular passive leisure activity that is highly prevalent among college students is drinking alcohol. For instance, 60 percent of college students drank alcohol in the past month and almost 2 out of 3 students engaged in binge drinking during that timeframe (National Institute on Alcohol Abuse and Alcoholism, 2015). This is especially important, as 74 percent of students at Ohio University indicated drinking in the last month while 59 percent engaged in heavy episodic drinking (Healthy Campus Survey Data, 2015). Since the prevalence of drinking is such a highly
popular activity on college campuses, and in particular at Ohio University it is important that the researcher intentionally targeted student populations that would indicate an active and positive form or leisure activity.

Undergraduate college students are a logical population to study the relationship between leisure participation and happiness as students tend to rank recreation and leisure as an important part of their lives (Blais et al., 1990; Wu, 2009) and recreation and leisure is second only to sleep in how students spend their time (Mortenson, 2011).

In order to email a large number of Ohio University students a combination of approaches were used such as the institution’s Office of Information Technology (OIT) and Registrar’s Office. The original email for participation was sent out through Ohio University’s OIT and all follow-up emails were sent by the researcher to undergraduate students on the main campus which included a brief overview of the study, a link to the anonymous survey hosted by the online survey system Qualtrics, and contact information for the researcher (Appendix B).

**Instrumentation**

Construction of the instrument was completed through the web-based software program Qualtrics, employing Likert scale responses, multiple choice, and in a few cases text entry for open-ended questions. The instrument was divided into four sections: Section A- demographic and leisure participation information; Section B- psychological outcomes of leisure participation; Section C- leisure satisfaction; and Section D- subjective well-being. The survey instrument is included in appendix A. The first page of
the survey will include the informed online consent form required by Ohio University’s Institutional Review Board (Appendix C).

**Section A: Demographic and leisure participation information.**

In addition to asking basic demographic information about year in school, age, gender, number of credits, number of hours student works per week, GPA, and major, this section of the instrument serves the purpose to understand how participants engage in the leisure activity they identify. Understanding how long participants have engaged in their choice leisure activity, how often, and the duration helps gain an understanding of the individual’s level of commitment to their leisure activity. Individuals who are committed to their leisure pursuit have greater leisure satisfaction and well-being (Luo Lu & Argyle, 1994). In addition, individuals who have a committed orientation towards their leisure pursuit have perceived positive social and personal benefits (Stebbins, 1992). Besides commitment, location of participation, indoors versus outdoors, has shown to impact happiness with the latter being more influential (Coon et al., 2011).

**Section B: Psychological outcomes of leisure participation.**

In order to measure the five psychological outcomes of leisure participation in the DRAMMA model several different scales and subscales, which have been validated by previous research, were used in the current study. The researcher chose instruments based on the degree to which they adequately measure the appropriate construct while balancing the need for brevity due to the complex and lengthy nature of the survey.

The concept of detachment-recovery is the degree to which an individual is able to utilize leisure to detach and recover, both psychologically and physiologically, from
work and other obligations (Newman et al., 2014). A modified version of Sonnentag and Fritz’s (2007) Recovery Experience Questionnaire (REQ) was used to measure how leisure facilitates the recovery from work and school. The REQ draws on mood regulation and job-stress recovery literature to establish the four diversionary strategies of psychological detachment, relaxation, mastery, and control during leisure time. Sonnentag and Fritz (2007) were particularly supportive of the role of the first two when they wrote, “These diversionary strategies, particularly detachment from work and relaxation-oriented strategies, should be useful for recovery because they imply that no further demands are made on functional systems called upon during work” (p. 205). Because mastery and control, with the latter also known as autonomy, being separate constructs in the DRAMMA model, they will be assessed by other instruments. Other studies utilized the subscales of the REQ in lieu of the whole questionnaire (Sonnentag et al., 2010). Because the study focuses on college students and the instrument is designed for workplace environments, the instrument was modified to include school as well as work when asking the questions. The subscales are comprised of four items each using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items include: “I forgot about work and/or school during my leisure time” (psychological detachment), “I kick back and relax during my leisure time” (relaxation).

Another psychological dimension of the DRAMMA model is autonomy, defined as the degree to which an individual freely chooses to participate in a leisure activity (Newman et al., 2014). A modified version of Basic Psychological Needs Scale (BPNS), which was developed from the General Need Satisfaction Scale (GNSS), was used in the
study to measure autonomy. The GNSS was developed by Gagne (2003) by modifying
the Basic Need Satisfaction at Work Scale (BNSWS) (Ilardi et al., 1993; Kasser et al.,
1992). Both scales have been modified for use in various contexts for physical activity
(Ntoumanis, 2005) and sport (Lundberg et al., 2010; Readdy et al., 2014). The BPNS is
comprised of three subscales: autonomy, competence/mastery, and affiliation; all of were
used in this study. When appropriate the items were slightly modified to include the term
“leisure activity”. The autonomy subscale is comprised of seven items using a 7-point
Likert scale ranging from 1 (not true at all) to 7 (very true). Sample items include: “I feel
like I am free to decide for myself how I participate in my leisure activity.”

In addition to using a modified version of the BPNS for autonomy, this study also
used the scale to measure mastery. The construct of mastery indicates the degree to
which a leisure activity challenges and provides learning opportunities for individuals to
improve their skill and achieve a new level of success (Newman et al., 2014).
Competency is synonymous with mastery as the construct is defined by opportunities to
acquire new skills, receive feedback, and to be optimally challenged (Ryan, Rigby, &
Przybylski, 2006). When appropriate the items were slightly modified to include the
term “leisure activity”. The competency subscale is comprised of six items using a 7-
point Likert scale ranging from 1 (not true at all) to 7 (very true). Sample item includes:
“I do not feel very competent when I participate in my leisure activity.”

Meaning is another construct in the DRAMMA model which refers to the means
and process where individuals gain something important or valuable in life through
meaning as, “… socially and contextually grounded psychological/emotional experience that holds inner significance for an individual” (p. 169). Based on these definitions the researcher chose to use the Engagement in Meaningful Activities Survey (EMAS) which is a 12-item scale developed by Goldberg, Brintnell, and Goldberg in 2002. The EMAS was designed to measure meaningful activity participation of individuals by understanding the degree to which activities they participate are valued by one’s social or cultural group, align with their value system, and provide evidence of mastery (Eakman et al., 2010b; Goldberg et al., 2002). The EMAS has been shown to have suitable psychometric properties when used with older adults (Eakman et al., 2010a), college students (Eakman, 2011, 2013) and age diverse samples (Eakman, 2012b). The meaning scale is comprised of 12-items using a 5-point Likert scale ranging from 1 (never) and 5 (always). The scale was slightly adapted in order to provide clarity for the participants by adding the term “leisure” in front of activity. In addition, the adjectival scaling was slightly modified from the original to include 2- Rarely, 3- Sometimes, and 4- Usually which is in alignment with previous studies using the EMAS instrument (i.e. Eakman, 2011; Eakman, Carlson, & Clark, 2010). Sample items include: “The leisure activity I do reflects the kind of person I am” (value alignment), “The leisure activity I do is valued by other people” (valued by ones social or cultural group), and “The leisure activity I do has just the right amount of challenge” (mastery).

The last psychological mechanism of the DRAMMA model is affiliation which is the ability of an individual to socially connect with others through leisure experiences (Newman et al., 2014). A modified version of Basic Psychological Need Scale was used
to measure affiliation. When appropriate the items were slightly modified to include the term “leisure activity”. The affiliation subscale is comprised of eight items using a 7-point Likert scale ranging from 1 (not true at all) to 7 (very true). Sample items include: “I get along with people I interact with during my leisure activity.”

**Section C: Leisure satisfaction.**

For this study leisure satisfaction is the mediating variable and defined as “… the positive perceptions or feelings which an individual forms, elicits, or gains as a result of engaging in leisure activities and choices” (Beard & Ragheb, 1980, p. 22). The Leisure Satisfaction Scale (LSS) was developed in 1980 by Beard & Ragheb and since has been used extensively in the leisure field. The LSS-Short form is comprised of 24 items across six categories with 4 items for each: psychological, educational, social, relaxation, physiological, and aesthetic. The LSS uses a 5-point Likert scale ranging from 1 (Almost never true for you) to 5 (Almost always true for you). Sample items include: “My leisure activities are very interesting to me” (psychological); “My leisure activities help me learn about myself” (educational); “The people I meet in my leisure activities are friendly” (social); “My leisure activities help relieve stress” (relaxation); “I do leisure activities which restore me physically” (physiological); “The areas or places where I engage in my leisure activities are interesting” (aesthetic).

**Section D: Subjective well-being.**

Subjective Well-Being is the endogenous variable in this study and defined as how individuals evaluate their life via life satisfaction through the frequency in which they experience both positive and negative emotions (Diener & Mark Suh, 1999; Diener
et al., 1999; Newman et al., 2014). SWB is comprised and measured based on both affective and cognitive components. Until Lyubomirsky and Lepper (1999) developed the subjective happiness scale (SHS), SWB was only measured by one of the two components or by single-item global evaluations. The SHS is a four-item instrument that uses a 7-point Likert scale ranging from 1 (not at all) to 7 (a great deal). It should be noted that two of the items use different indicators in the Likert scale. Sample items include: “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?”

In addition to the SHS, the study also utilized the Satisfaction With Life Scale (SWLS) developed by Diener et al. (1985) which assess global life satisfaction. The SWLS is designed to measure only the cognitive aspects of SWB and not the affective components. The SWLS is a five-item instrument that uses a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items include: “In most ways my life is close to ideal.”

In order to capture the affective component of SWB the study utilized the Scale of Positive and Negative Experiences (SPANE) developed by Diener et al. (2010) which assesses positive and negative feelings. The SPANE is a twelve-item instrument that uses a 5-point Likert scale ranging from 1 (very rarely or never) to 5 (very often or always). The instrument includes six items for both positive and negative feelings, with three items being general (e.g., pleasant) and three items being more specific (e.g., joyful).
Exogenous Variables

The exogenous variables in this study are the five psychological mechanisms of detachment-recovery, autonomy, mastery, meaning, and affiliation. The study first collected demographic information on students along with their leisure activity information in order to understand the factors that may influence the five psychological mechanisms. Participants were asked to name a leisure activity they most identify with, then answer questions pertaining to the five psychological mechanisms with their leisure activity in mind. Table 3-1 provides the IV, data sources, variable types, and scale ranges.

Table 1

<table>
<thead>
<tr>
<th>Exogenous Variables</th>
<th>Data Source</th>
<th>Variable Type</th>
<th>Scale Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detachment-Recovery (DR)</td>
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</tr>
<tr>
<td>Autonomy (AU)</td>
<td>BPNS</td>
<td>Ordinal</td>
<td>1 = Low 7 = High</td>
</tr>
<tr>
<td>Mastery (MA)</td>
<td>BPNS</td>
<td>Ordinal</td>
<td>1 = Low 7 = High</td>
</tr>
<tr>
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<td>EMAS</td>
<td>Ordinal</td>
<td>1 = Low 5 = High</td>
</tr>
<tr>
<td>Affiliation (AF)</td>
<td>BPNS</td>
<td>Ordinal</td>
<td>1 = Low 7 = High</td>
</tr>
</tbody>
</table>

Endogenous Variable

The endogenous variable in this study was SWB as measured by the SHS, SWLS, and SPANE. The survey allowed the researcher to evaluate individuals overall perceived global happiness, life satisfaction, positive and negative feelings as mediated by leisure satisfaction. Leisure satisfaction served as a mediating variable because it explains the
relationship between the exogenous variables, the five psychological mechanisms, and the endogenous variable, SWB. Baron and Kenny (1986) in their seminal work explained mediation by writing “In general, a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion” (p. 1174).

Pilot Study

Pilot studies are vital to a good study design and beneficial because it allows the researchers to access their design and evaluate the appropriateness of data collection methods and procedures (Light, Singer, & Willett, 1990). Pilot studies often take on two separate functions; one is often referred to as a feasibility study, which is a small-scale version or trial run of the main survey. The second function is to pre-test a research instrument to ensure it measures the phenomenon being testing (van Teijlingen & Hundley, 2001; van Teijlingen, Rennie, Hundley, & Graham, 2001). There are four reasons to conduct a pilot study (a) process- addresses the feasibility of the steps that will take place as part of the larger study; (b) resources- assesses potential time issues that can occur as part of the main study such as time to fill out the survey and participant understanding of the instrument; (c) management- addresses data management and time issues for the researchers; (d) scientific- covers the assessment of the instrument and its utility for the proposed study (Thabane et al., 2010). van Teijlingen and Hundley (2001) concluded, “Conducting a pilot study does not guarantee success in the main study, but it does increase the likelihood” (p. 1).
The purpose of this pilot study was focused on evaluating the reliability and validity of the survey instrument as it was developed by combining already established instruments or subscales into a single assessment tool. The pilot study was conducted with students in an introductory recreation course at Ohio University, Rec 2010, Recreation and Leisure and Society. Enrollment in this course was 92 students with 86 students completing the pilot survey. Using the class enrollment list, an email was sent to the students and included a brief overview of the study, a link to the anonymous survey hosted by the online survey system Qualtrics, and contact information for the researcher.

**Reliability Issues**

Each scale or subscale has been used in previous research and shown through Cronbach alpha reliability scores to be reliable with high levels of internal consistency. Cronbach’s alpha allows researchers to assess the internal consistency reliability of instruments that have different scoring and response scales (Kerlinger & Lee, 2000). A reliability coefficient of .70 or higher is considered acceptable in social science research. For this study Cronbach alpha was reported the final data set.

**Validity Issues**

When using existing instruments, validity is established based on previous use of the instrument. At the conclusion of the study the researcher looked at the construct validity, in particular discriminant validity, by looking at the correlations between the DRAMMA measures. This is particularly important because the instrument used in this study was developed by combining subscales from established instruments.
Data Collection

An electronic survey was chosen because the individuals in the sample are difficult to reach via other survey methods due to the large size of the sample. In addition, online surveys are less costly than other recruitment methods (Alessi & Martin, 2010). Even though response rates for web based surveys can be considerably lower than other survey distribution methods (Alessi & Martin, 2010; Munoz-Leiva, Sanchez-Fernandez, Montoro-Rios, & Ibanez-Zapata, 2010; Sauermann & Roach, 2012) there are ways to increase online survey response rates such as personalization and frequency of reminders, both of which were utilized in this study.

A request to participate in the survey was sent through an electronic message (email) (Appendix B). The email went to all Ohio University undergraduate students who were enrolled in the spring semester of 2016 and have active email addresses. The email included a brief overview of the study, a link to the anonymous survey hosted by the online survey system, Qualtrics, and contact information for the researcher. In addition, a follow-up email was sent within 24 hours of the general email to the students who have taken a Recreations Studies or Physical Activity and Wellness course during the academic year 2015-16. In order to access the email addresses for the entire undergraduate population the researcher worked with the Office of Information Technology (OIT) and submitted a public records request to the Office of Legal Affairs, per the requirements of the University. Accessing the email addresses in this manner
required that OIT distribute the original email and I send all reminder emails. In addition, the email included an anonymous link to the survey so no student data was tracked.

In addition, two follow up emails were sent at two and four weeks after the initial invitation as lower frequency reminders (i.e., 14 days) has been shown to increase respondents rate of survey completion (Munoz-Leiva et al., 2010). Only two email reminders were sent as Munoz-Leiva et al. (2010) advise against sending more than three to four messages including the opening invitation and final warning. Furthermore, there were slight changes in the wording of each reminder as this has been shown to increase response rates by 30 percent due to the subjects interpreting the contacts being sent by a “real” researcher and the perceived investment of time and effort on behalf of the researcher (Sauermann & Roach, 2012). The follow up emails contained a different subject line and the body of the email was slightly modified without altering the intent and substantive information. In addition, the initial invitation to participate along with email reminders were not influenced by timing, as the day of the week and hour of the day did not have significantly increase response rates (Sauermann & Roach, 2012).

Follow up emails and personalization are important factors to include when utilizing detailed web surveys as response rates to be lower than other survey modes (Sauermann & Roach, 2012) as the low cost and relative easy of distribution have lead to over surveying. Initial testing of the web survey used in this study showed and average completion time of 10.5 minutes.
Data Analysis Procedures

In order to examine the relationship between the five psychological outcomes of leisure participation, as outlined in the DRAMMA model, leisure satisfaction, and SWB several instruments were utilized. In order to analyze the data the Statistical Package for Social Sciences (SPSS) and AMOS was used. Internal consistency reliability of the factors were tested using Cronbach’s alpha.

Utilizing data from the instrument, descriptive statistics was used to establish frequency distributions, means, and standard deviations. In order to answer research questions 1-3 either linear or multiple regression was used as it allows one to predict values of the dependent variable from one or more independent variables (Field, 2009). Regression allows a researcher to determine if the linear relationship between the variables is statistically significant, determine how much variation in the dependent variable is explained by the independent variable(s), understand the magnitude and direction of the relationship between the independent variable(s) and the dependent variable, and based on the different values of the independent variables predict values of the dependent variable (Laerd Statistics, 2015b). Research question one and two employed multiple regression analysis to test whether the five psychological mechanisms of the DRAMMA model predict SWB (question 1) and leisure satisfaction (question 2). A multiple regression model was appropriate in answering these research questions because there are multiple independent variables and one dependent variable. In addition, multiple regression allowed for the determination of the overall fit of the relationship and the contribution of each of the independent variables to the total variance explained.
Research question three was answered using bivariate linear regression with leisure satisfaction being the independent variable and SWB being the dependent variable. Bivariate regression is appropriate in answering this question as there is just one independent variable.

In order to answer question 4 and test the strength of the model, path analysis was used as the primary statistical tool. Path analysis is a causal modeling approach that uses regression to provide explanations of relationships among a set of variables (Mertler & Vannatta, 2002). Additionally, path analysis analyzes the direct and indirect influences of the independent variables on each other and on the dependent variable (Kerlinger & Lee, 2000). Path analysis is advantageous over simpler modeling as both direct and indirect causal effects can be estimated (Mertler & Vannatta, 2002) and can be used to test complex hypotheses (Kerlinger & Lee, 2000). The DRAMMA diagram (see Figure 1) highlighted in Chapter 1 establishes a causal flow, or direction of cause and effect, which is the first step in path analysis. Considering the DRAMMA model is conceptual and this was the first study the researcher is aware of to test the model, the use of path analysis is a natural fit as support by Kerlinger and Lee (2000), when they wrote, “…path analysis still serves as a useful research tool in developing a conceptual model that can be tested empirically” (p.804).

In order to have valid causal inferences, path analysis relies on the model to be correctly specified and the following assumptions outlined by Mertler and Vannatta (2002) must be met:

1. The model must accurately reflect the actual causal sequence
2. The structural equation for each endogenous variable includes all variables that are direct causes of that particular endogenous variable.

3. There is a one-way causal flow in the model.

4. The relationships among the variables are assumed to be linear, additive, and causal in nature; any curvilinear relations, etc., are to be excluded.

5. All exogenous variables are measured without error (p. 205)

It is important to note that assumptions 1-4 address the specificity of the model while 5 is an issue of research design and data collection. The accuracy of the model is based on a combination of theory, experience, research, literature, and in some cases opinions. Therefore, the proposed model should be plausible to experts in the field, should be able to predict future events, and current literature should serve as the context to evaluate the results (Mertler & Vannatta, 2002).

**Summary**

This study of college students’ leisure participation influence on SWB examined four research questions:

1. Do the five psychological mechanisms of the DRAMMA model predict SWB?
   a. (H₀₁) There is no relationship between the five psychological mechanisms of the DRAMMA model and SWB.

2. Do the five psychological mechanisms of the DRAMMA model predict leisure satisfaction?
   a. (H₀₂) There is no relationship between the five psychological mechanisms of the DRAMMA model and leisure satisfaction.
3. Does leisure satisfaction predict SWB?
   a. \((H_0_3)\) There is no relationship between leisure satisfaction and SWB.

4. How well does the DRAMMA model explain SWB in a college student population?
   a. \((H_0_4)\) There is no relationship between the DRAMMA model and SWB with a college student population.

The study included undergraduate college students who were enrolled in Ohio University’s main campus during the 2016 spring semester. The University’s OIT sent out the initial email to all undergraduate students and the researcher sent out all follow-up emails. Each email included a brief overview of the study, a link to the anonymous survey hosted by the online survey system Qualtrics, and contact information for the researcher. The email went out to 16,816 undergraduate students. In addition, a follow-up email was sent within 24 hours to students who enrolled in a Recreation Studies or a Physical Activity and Wellness course during the academic year 2015-16. A total of 2,859 students received the follow-up request to participate in the study.

The web-based construction of the survey was developed using Qualtrics software by employing multiple-choice responses, scale responses, and text entry for open-ended questions. The instrument was divided into four sections: Section A- demographic and leisure participation information; Section B- psychological outcomes of leisure participation; Section C- leisure satisfaction; and Section D- subjective well-being.

The exogenous or independent variables in this study are the five psychological mechanisms of detachment-recovery, autonomy, mastery, meaning, and affiliation. The
endogenous or dependent variable in this study SWB while leisure satisfaction serves as a mediating variable because it explains the relationship between the exogenous variables, the five psychological mechanisms, and the endogenous variable, SWB.

The survey instrument for this study was tested for reliability and validity. Data analysis on the respondent data included descriptive statistics, bivariate linear regression, multiple regression, and path analysis.
Chapter 4: Results

The purpose of this research study was to understand the relationship between college student leisure participation and happiness by partially testing the DRAMMA model as proposed by Newman et al. (2014). This chapter presents a comprehensive analysis of data collected in order to answer the proposed research questions.

Instrumentation

Data for this study were collected through combining several preexisting instruments or subscales, in addition to a section for basic demographic data. The instrument had a total of 100-items in four sections: Section A- demographic and leisure participation information consisted of 13-items; Section B- psychological outcomes of leisure participation consisted of 42-items; Section C- leisure satisfaction consisted of 24-items; and Section D- subjective well-being consisted of 21-items. Sections B, C, and D of the instrument used a combination of five-point and seven-point Likert-type items.

Section B utilized the following instruments to measure the psychological outcomes of leisure participation: two subscales of the Recovery Experience Questionnaire (REQ) to measure detachment-recovery, the autonomy subscale of the Basic Psychological Needs Scale (BPNS) to measure autonomy, the competency subscale of the BPNS to measure mastery, the Engagement in Meaningful Activities Survey (EMAS) to measure meaning, and the affiliation subscale of the BPNS to measure affiliation. For section C, leisure satisfaction was measured using the Leisure Satisfaction Scale (LSS)-short form. For section D, subjective wellbeing was used measuring the
Subjective Happiness Scale (SHS), Satisfaction With Life Scale (SWLS), and the Scale of Positive and Negative Experiences (SPANE).

**Pilot Study**

The results of the pilot study helped the researcher understand the reliability of the instrument, total completion time, and fix question wording. The pilot study was conducted in the spring of 2016 with students in an introductory recreation course at Ohio University, Rec 2010, Recreation and Leisure and Society. Enrollment in this course was 92 students with 86 students completing the pilot survey, but only 85 provided complete responses.

The reliability testing results, using Cronbach’s Alpha for the DRAMMA Questionnaire were: Detachment-Recovery, $\alpha = .755$; Meaning, $\alpha = .870$; Autonomy, $\alpha = .672$; Mastery, $\alpha = .551$; Affiliation, $\alpha = .789$. The internal consistency for meaning was good. While detachment-recovery and affiliation was acceptable, with autonomy and mastery being questionable. The reliability testing results for the leisure satisfaction and the SWB measures were: Leisure Satisfaction Scale, $\alpha = .886$; Subjective Happiness Scale, $\alpha = .857$; Life Satisfaction, $\alpha = .915$. The internal consistency for leisure satisfaction and life satisfaction was excellent while the subjective happiness scale was good. The pilot study did not include the scale for positive and negative experiences, as the researcher did not find that instrument until after the questionnaire was already distributed.

In addition, during the pilot study the respondents overall completion time was recorded. The average completion time was 10.5 minutes. In addition, a duplicate
question was identified, removed, and replaced with the appropriate question. The duplicate question was identified and removed when testing reliability.

**Data Collection and Response Rate**

On April 11, 2016, Ohio University’s Office of Information Technology (OIT) distributed an email invitation to participate in the study to 16,816 currently enrolled undergraduate students at Ohio University’s main campus. The email invitation included brief information about the study’s purpose, a request for participation, potential benefits, a link to the online survey, and the contact information for the researcher. In addition to the email invitation for the undergraduate student body a follow up email request was sent, within 24 hours of the general email, to a targeted group of students who enrolled in a Recreation Studies or a Physical Activity and Wellness course during the academic year 2015-16. A total of 2,859 students received the follow-up request to participate in the study.

An email reminder to participate in the study was sent starting on April 25, 2016. However, due to a change in university policy OIT could no long distribute the email meaning the researcher had to distribute the email. The email addresses for participants were obtained through an open record request to the University’s Legal Affairs Office. In addition, due to university email restrictions only 10,000 emails can be sent in a 24-hour period, therefore, the email reminder was sent on two separate days, with the targeted group receiving the email on the third day. The final email reminder to participate in the study was sent out starting on May 9, 2016. A total 1,210 individuals responded to the survey with 704 respondents completing the entire survey.
Data Overview

Data gathered through the survey were screened to ensure accuracy. Descriptive statistics were evaluated; standard deviations and frequency distributions were examined for unusual values. Once the data were collected, it was cleaned and organized to facilitate the data analysis. The data were scanned for missing data, and only one was found for the demographic variable. Due to the non-critical nature of this question, the researcher chose to include the case in the final data set. Several of the items in the questionnaire were recoded including items in the scales for autonomy, mastery, relatedness, and subjective happiness scale. In addition to reverse coding, composite scores were created for detachment recovery, autonomy, mastery, meaning, affiliation, leisure satisfaction, life satisfaction, and subjective happiness by averaging the answers to the each scale. For the SPANE scale answers, the positive and negative responses were added to get two separate scores, then the negative feeling score was subtracted from the positive feeling score to get the affect balance score. A higher score indicates the respondent rarely or never experiences negative feelings and very often or always experiences positive feelings.

Demographic.

Basic demographic data such as class standing, gender, age, grade point average, hours worked per week, and currently enrolled credit hours, were collected about participants in order to provide an overview of who the participants of the study were and not for analysis purposes. See Table 2 for an overview.
**Class standing.**

The class standing was relatively equally distributed across the various class ranks. The respondents reported their class standings as Freshman, N = 196 (27.8%); Sophomore, N = 160 (22.7%); Junior, N = 165 (23.4%); and Senior, N = 183 (26.1%).

**Gender.**

The respondents included more females than males, but the differences in representation by gender were not extreme. However, male and females significantly outnumbered those who identified as transgender or did not identify with any of the aforementioned classifications. The undergraduate students completing the entire survey reported their gender as female, N = 453 (64%); male, N = 243 (35%); transgender, N = 2 (.02%); and do not identify as male, female, or transgender, N = 5 (.07%).

**Age.**

Because the study sampled undergraduate students at a traditional four-year residential institution, the expectation was to have a homogenous group based on ages. A vast majority of respondents fell into the traditional undergraduate age range of 18-22, N = 630 (89.5%). Because the study required participants to be 18 years of age, no respondents fell below that threshold and the highest reported age was 46. The respondents of the questionnaire reported the following ages: 18, N = 85 (12.1%); 19, N = 175 (24.9%); 20, N = 158 (22.4%); 21, N = 148 (21%); 22, N = 64 (9.1%); >22, N = 74 (10.5%). The mean age was 20.63 (SD = .113).
Grade point average.

The respondents predominantly indicated they held above a 3.0 cumulative GPA with relatively few indicating their GPA was below a 2.0. The respondents reported their GPA as follows: below 2.0, N= 8 (1.1%); 2.0-2.4, N = 40 (5.7%); 2.5-2.9, N = 123 (17.5%); 3.0-3.4, N = 232 (33%); 3.5-4.0, N = 300 (42.7%). The average GPA was 3.27 (SD = .543).

Average hours worked.

The respondents largely indicated they did not work at an on or off campus job during the spring 2016 semester. The respondents reported the number of hours as follows: 0, N = 321 (45.6%); 1-5 hours, N = 37 (5.2%); 6-10 hours, N = 122 (17.3%); 11-15 hours, N = 94 (13.3%); 16-20 hours, N = 67 (9.5%); 21-30 hours, N = 41 (5.7%); 31 or more, N = 22 (2.9%). The range of responses was 0-50 with a mean of 7.96 hours and a standard deviation of 9.823.

Credit hours.

As part of the questionnaire, respondents indicated their current credit hour load for the spring 2016 semester. The respondents reported their credit load as follows: below 12, N = 28 (4.0%); 12, N = 46 (6.5%); 13, N = 28 (4.0%); 14, N = 29 (4.1%); 15, N = 209 (29.7%); 16, N = 142 (20.2%); 17, N = 73 (10.4%); 18, N = 81 (11.5%); above 18, N = 68 (9.6%). The range of responses was 4-25 with a mean of 15.61 credits and a standard deviation of 2.487.
Table 2

*Frequency Table for Demographic Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
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<tbody>
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<td>Class Standing</td>
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<td>Freshman</td>
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<td>Sophomore</td>
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<td>18</td>
<td>81</td>
<td>11.5</td>
</tr>
<tr>
<td>&gt;18</td>
<td>68</td>
<td>9.6</td>
</tr>
</tbody>
</table>
Leisure Participation

Basic participation information such as years of participation, frequency of participation, duration of participation, location when participation, and level of commitment to chosen leisure activity was collected about participants in order to provide a basic description of how the participants of the study were involved in their chosen leisure activity and not for analysis purposes. See Table 3 for an overview.

**Number of years participating in the leisure activity.**

As part of the questionnaire, respondents indicated the number of years they have participated in their chosen leisure activity. The respondents reported the number of years as follows: < 1 year, N = 1 (.01%); 1-3 years, N = 191 (27.2%); 4-6 years, N = 148 (21%); 7-9 years, N = 87 (12.4%); 10-12 years, N = 111 (15.7%); 13-15 years, N = 67 (9.5%); > 15 years, N = 99 (14.1%). The range of responses was 0-35 years with a mean of 8.2 years and a standard deviation of 5.84.

**Frequency of participation.**

In addition to number of years, respondents were asked to indicate the frequency in which they participated in their chosen leisure activity. The respondents reported their frequency of participation as follows: A few times per year, N = 33 (4.7%); Once a month, N = 34 (4.8%); 2-3 times a month, N = 81 (11.5%); Once a week, N = 81 (11.5%); 2-3 times a week, N = 212 (30.1%); 4 or more times per week, N = 263 (37.4%).
Table 3

**Frequency Table for Leisure Participation Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Years if Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1</td>
<td>1</td>
<td>.01</td>
</tr>
<tr>
<td>1-3 years</td>
<td>191</td>
<td>27.2</td>
</tr>
<tr>
<td>4-6 years</td>
<td>148</td>
<td>21</td>
</tr>
<tr>
<td>7-9 years</td>
<td>87</td>
<td>12.4</td>
</tr>
<tr>
<td>10-12 years</td>
<td>111</td>
<td>15.7</td>
</tr>
<tr>
<td>13-15 years</td>
<td>67</td>
<td>9.5</td>
</tr>
<tr>
<td>&gt; 15 years</td>
<td>99</td>
<td>14.1</td>
</tr>
<tr>
<td><strong>Frequency of Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A few times a year</td>
<td>33</td>
<td>4.7</td>
</tr>
<tr>
<td>Once a month</td>
<td>34</td>
<td>4.8</td>
</tr>
<tr>
<td>2-3 times a month</td>
<td>81</td>
<td>11.5</td>
</tr>
<tr>
<td>Once a week</td>
<td>81</td>
<td>11.5</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>212</td>
<td>30.1</td>
</tr>
<tr>
<td>4 or more times per week</td>
<td>263</td>
<td>37.4</td>
</tr>
<tr>
<td><strong>Duration of Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 hour</td>
<td>50</td>
<td>7.1</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>407</td>
<td>57.8</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>155</td>
<td>22</td>
</tr>
<tr>
<td>5-6 hours</td>
<td>51</td>
<td>7.2</td>
</tr>
<tr>
<td>7-8 hours</td>
<td>12</td>
<td>1.7</td>
</tr>
<tr>
<td>More than 9 hours</td>
<td>29</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Location of Part Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoors</td>
<td>194</td>
<td>27.6</td>
</tr>
<tr>
<td>Outdoors</td>
<td>144</td>
<td>20.5</td>
</tr>
<tr>
<td>Both</td>
<td>366</td>
<td>52</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>9</td>
<td>1.3</td>
</tr>
<tr>
<td>Slightly</td>
<td>50</td>
<td>7.1</td>
</tr>
<tr>
<td>Moderately</td>
<td>235</td>
<td>33.4</td>
</tr>
<tr>
<td>Very</td>
<td>265</td>
<td>37.6</td>
</tr>
<tr>
<td>Extremely</td>
<td>145</td>
<td>20.6</td>
</tr>
</tbody>
</table>

Length of time when participating.

As part of the questionnaire, respondents were asked to indicate, on average, how long they engage in their chosen activity per session. The respondents reported the
following length of times: Less than 1 hour, N = 50 (7.1%); 1-2 hours, N = 407 (57.8%); 3-4 hours, N = 155 (22%); 5-6 hours, N = 51 (7.2%); 7-8 hours, N = 12 (1.7%); more than 9 hours, N = 29 (4.1%).

**Location when participating.**

Participants were asked to indicate the location where they participate in their chosen leisure activity. The respondents reported their locations as follows: Indoors, N = 194 (27.6%); Outdoors, N = 144 (20.5%); Both Indoors and Outdoors, N = 366 (52%).

**Level of commitment to their chosen leisure activity.**

As part of the questionnaire, respondents were asked to indicate how committed they were to their chosen leisure activity. The respondents reported the following level of commitment: Not at all, N = 9 (1.3%); Slightly, N = 50 (7.1%); Moderately, N = 235 (33.4%); Very, N = 265 (37.6%); Extremely, N = 145 (20.6%).

**Cross Tabulations**

Cross tabulations are a useful in highlighting relationships between two variables. Cross tabulations were run for year in school with commitment to their chosen leisure activity, frequency of participation, and duration of time on their chosen leisure per session. The same tabulations were run with gender identification. When looking at year in school with commitment levels, 41% of seniors indicated being very committed, this was the highest of any category, while freshman reported higher levels of being extremely committed (27%) than the other three groups. Sophomores reported the highest levels of being moderately committed (36%). Gender was also considered with level of commitment to one’s chosen leisure activity. Females reported higher levels of being
moderately committed when compared to males (36% vs. 27%) however, males reported higher levels of being either very or extremely committed (40%, 23%) when compared to females (36%, 19%). See appendix E for cross tabulation tables.

In addition, cross tabulations were run for year in school with frequency of participation. 42% of freshman indicated engaging in their leisure activities four or more times a week, a higher percentage than the other three class standings. 32% of sophomores, juniors, and seniors reported participating 2-3 times a week in their leisure activity while 24% of freshman reported similar participation rates. In terms of gender, females reported at double the rate of males in participating in their chosen leisure activity a few times a year or once a month. Males indicated participating in their leisure activity four or more times a week at a higher rate than females (45% vs. 33%). See appendix E for cross tabulation tables.

Finally, cross tabulations were examined for year in school with duration of time spend on leisure per session. A majority of the duration of participation fell within 1-2 hours with sophomores reported the highest levels within this block at 64%, which is 11% higher than juniors and seniors and almost 5% higher than freshman. Freshman and seniors reported the highest levels of participating more than nine hours, 4% and 8% respectively. When considering gender there was no difference of interest between males and females. See appendix E for cross tabulation tables.

**Reliability**

The electronic questionnaire was developed using several well established and validated scales. The survey was distributed in compliance with the pre-established
methods and timing outlined in Chapter 3 and drew respondents from a large sample size. The only concern in distributing the questionnaire was the researcher failed to make the survey questions force complete on the first distribution, thus several participants did not answer a significant portion of the questions.

Using the data collected, Cronbach’s Alpha, a coefficient of reliability that measures the internal consistency reliability of the degree to which the items on the scale are measuring the same underlying dimension, was used to evaluate the internal consistency of the various scales used (Laerd Statistics, 2015a). The calculation of internal consistency is important because it examines the consistency of responses to various items in a scale at a given time (Light et al., 1990). According to Field (2009) when evaluating Cronbach’s Alpha greater than 0.90 is excellent, above 0.80 is good, above 0.70 is acceptable, while above 0.60 is questionable but when dealing with psychological constructs values below 0.70 can be expected.

The reliability testing results for the DRAMMA Questionnaire psychological mechanisms scales were: Detachment-Recovery, $\alpha = .791$; Meaning, $\alpha = .864$; Autonomy, $\alpha = .678$; Mastery, $\alpha = .633$; Affiliation, $\alpha = .834$. The internal consistency for meaning and affiliation were good, detachment-recovery was acceptable, and mastery and autonomy were questionable. Interestingly the scales for affiliation, mastery, and autonomy came from slightly adapting the Basic Psychological Needs Questionnaire and the reliability testing for the entire instrument was $\alpha = .835$.

The reliability testing results for the leisure satisfaction and the SWB measure were: Leisure Satisfaction Scale, $\alpha = .886$; Subjective Happiness Scale, $\alpha = .861$; Life
Satisfaction, $\alpha = .862$; Positive Experiences (SPANE), $\alpha = .888$; Negative Experiences (SPANE), $\alpha = .833$. The internal consistency for all four measures were good. See Table 4 for an overview of the results.

Table 4

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detachment-Recovery (DR)</td>
<td>.791</td>
<td>8</td>
</tr>
<tr>
<td>Autonomy (AU)</td>
<td>.678</td>
<td>7</td>
</tr>
<tr>
<td>Mastery (MA)</td>
<td>.633</td>
<td>6</td>
</tr>
<tr>
<td>Meaning (ME)</td>
<td>.864</td>
<td>12</td>
</tr>
<tr>
<td>Affiliation (AF)</td>
<td>.834</td>
<td>8</td>
</tr>
<tr>
<td>Leisure Satisfaction (LS)</td>
<td>.866</td>
<td>24</td>
</tr>
<tr>
<td>Subjective Happiness (SHS)</td>
<td>.861</td>
<td>4</td>
</tr>
<tr>
<td>Life Satisfaction (LSS)</td>
<td>.862</td>
<td>5</td>
</tr>
<tr>
<td>Positive (SPANE)</td>
<td>.888</td>
<td>6</td>
</tr>
<tr>
<td>Negative (SPANE)</td>
<td>.833</td>
<td>6</td>
</tr>
</tbody>
</table>

**Descriptive Statistics for Variables**

The composite scores for the seven variables in the study were calculated for each case then mean, standard deviations, skewness, and kurtosis were run. Table 5 provides a summary of the results. The observations for detachment-recovery ranged from 1.75 to 5.00, on a five-point scale, with an average of 3.88 ($SD = 0.67$). While the observations for autonomy ranged from 1.43 to 7.00, on a seven-point scale, with an average of 5.86 ($SD = 0.87$). The observations for mastery ranged from 1.50 to 7.00, on a seven-point scale, with an average of 5.60 ($SD = 0.94$). The observations for affiliation ranged from 1.75 to 7.00, on a seven-point scale, with an average of 5.41 ($SD = 1.11$). The observations for meaning ranged from 1.92 to 5.00, on a five-point scale, with an average
of 3.98 ($SD = 0.61$). The observations for leisure satisfaction ranged from 2.00 to 5.00, on a five-point scale, with an average of 3.97 ($SD = 0.55$). Finally, the observations for SWB ranged from 1.00 to 7.00, on a seven-point scale with an average of 4.86 ($SD = 1.27$). Skewness and kurtosis were not calculated due to the large sample size because they are likely to be significant even if the data is not too different from a normal distribution (Field, 2009). However, Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests were run which resulted in non-significant results meaning the distributions were normal (Ghasemi & Zahediasl, 2012).

### Table 5

**Summary Statistics Table for Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
<th>Scale</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>5.86</td>
<td>0.87</td>
<td>1-7</td>
<td>1.43</td>
<td>7.00</td>
</tr>
<tr>
<td>Mastery</td>
<td>5.60</td>
<td>0.94</td>
<td>1-7</td>
<td>1.50</td>
<td>7.00</td>
</tr>
<tr>
<td>Affiliation</td>
<td>5.41</td>
<td>1.11</td>
<td>1-7</td>
<td>1.75</td>
<td>7.00</td>
</tr>
<tr>
<td>Meaning</td>
<td>3.98</td>
<td>0.61</td>
<td>1-5</td>
<td>1.92</td>
<td>5.00</td>
</tr>
<tr>
<td>Detach_Recov</td>
<td>3.88</td>
<td>0.67</td>
<td>1-5</td>
<td>1.75</td>
<td>5.00</td>
</tr>
<tr>
<td>Leisure_Sat</td>
<td>3.97</td>
<td>0.55</td>
<td>1-5</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>SWB</td>
<td>4.86</td>
<td>1.27</td>
<td>1-7</td>
<td>1.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

### Inferential Statistics Results

In order to understand the overall relationship between variables a Pearson correlation analysis was conducted. The four research questions in this study were answered using the following statistical procedures. Research questions one and two utilized multiple regression to predict whether the five psychological mechanisms of the DRAMMA model predict SWB (question 1) and leisure satisfaction (question 2). Question three utilized bivariate regression to understand whether leisure satisfaction
predicts SWB. Finally, path analysis was utilized to understand the strength of the overall model.

**Pearson correlation analysis.**

A Pearson correlation analysis was conducted among Autonomy, Mastery, Affiliation, Meaning, Detachment-Recovery, Leisure Satisfaction, and SWB. Cohen's $d$ was used to assess the strength of the relationships between the variables, coefficients between .10 and .29 represent a small relationship, coefficients between .30 and .49 represent a moderate relationship, and coefficients above .50 indicate a large relationship (Field, 2009). Pearson correlation requires that the relationship between each pair of variables does not change direction. This assumption is violated if the points on the scatterplot between any pair of variables appear to shift from a positive to negative or the inverse (Field, 2009). Table 6 presents the results of the correlations.

There was a significant positive correlation between Autonomy and Mastery ($r = 0.44, p < .001$) and Autonomy and Affiliation ($r = 0.37, p < .001$) indicating a moderate relationship. There was a significant positive correlation between Autonomy and Meaning ($r = 0.29, p < .001$), Autonomy and Detachment-Recovery ($r = 0.29, p < .001$), Autonomy and Leisure Satisfaction ($r = 0.20, p < .001$), Autonomy and SWB ($r = 0.18, p < .001$) indicating a small relationship.

There was a significant positive correlation between Mastery and Meaning ($r = 0.61, p < .001$) and Mastery and Leisure Satisfaction ($r = 0.50, p < .001$) indicating a large relationship. There was a significant positive correlation between Mastery and Affiliation ($r = 0.35, p < .001$) indicating a moderate relationship. There was a
significant positive correlation between Mastery and Detachment-Recovery ($r = 0.17, p < .001$) and Mastery and SWB ($r = 0.26, p < .001$) indicating a small relationship.

There was a significant positive correlation between Affiliation and Meaning ($r = 0.21, p < .001$), Affiliation and Detachment-Recovery ($r = 0.12, p = .002$), and Affiliation and SWB ($r = 0.27, p < .001$) indicating a small relationship. There was a significant positive correlation between Affiliation and Leisure Satisfaction ($r = 0.44, p < .001$) indicating a moderate relationship.

There was a significant positive correlation between Meaning and Detachment-Recovery ($r = 0.24, p < .001$) and Meaning and SWB ($r = 0.26, p < .001$) indicating a small relationship. There was a significant positive correlation between Meaning and Leisure Satisfaction ($r = 0.69, p < .001$) indicating a large relationship.

There was a significant positive correlation between Detachment-Recovery and Leisure Satisfaction ($r = 0.18, p < .001$) and Detachment-Recovery and SWB ($r = 0.12, p < .001$) indicating a small relationship. There was a significant positive correlation between Leisure Satisfaction and SWB ($r = 0.31, p < .001$) indicating a moderate relationship.

In addition, correlations between the SWB scales were reviewed in order to understand their relationship and provide support for which instrument to use in the final analysis. There was a significant positive correlation between SPANE Balance and Life Satisfaction Scale ($r = 0.59, p < .001$) and the Subjective Happiness Scale ($r = 0.67, p < .001$) indicating a large relationship for both cases. Additionally, there was a significant
positive correlation between Life Satisfaction Scale and the Subjective Happiness Scale 
\( r = 0.68, p < .001 \) indicating a large relationship.

Table 6

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Autonomy</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mastery</td>
<td>0.44</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Affiliation</td>
<td>0.37</td>
<td>0.35</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Meaning</td>
<td>0.29</td>
<td>0.61</td>
<td>0.21</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Detach_Recover</td>
<td>0.29</td>
<td>0.17</td>
<td>0.12</td>
<td>0.24</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Leisure Satisfaction</td>
<td>0.20</td>
<td>0.50</td>
<td>0.44</td>
<td>0.69</td>
<td>0.18</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>7. SWB</td>
<td>0.18</td>
<td>0.26</td>
<td>0.27</td>
<td>0.26</td>
<td>0.12</td>
<td>0.31</td>
<td>-</td>
</tr>
</tbody>
</table>

Research Question 1

Research question one is, “Do the five psychological mechanisms of the DRAMMA model predict SWB?” In this multiple regression detachment-recovery, autonomy, mastery, meaning, and affiliation were the independent variables while SWB was the dependent variable. When utilizing multiple regression several assumptions about the data must be tested in order to have valid results (Field, 2009). One assumption is to ensure there is no multicollinearity between the independent variables. Multicollinearity is present when there are two or more independent variables that are highly correlated with each other leading to problems understanding which variable contributes to the variance. Tests to see if the data met the assumption of collinearity indicated multicollinearity was not a concern (Detachment-Recovery, Tolerance = .887, VIF = 1.127; Autonomy, Tolerance = .708, VIF = 1.412; Mastery, Tolerance = .536, VIF = 1.867; Meaning, Tolerance = .615, VIF = 1.625; Affiliation, Tolerance = .820, VIF =
1.219). High VIFs indicate increased effects of multicollinearity in the model. Variance Inflation Factors greater than 6 are cause for concern, whereas a VIFs of 10 should be considered the maximum upper limit (Field, 2009). Additionally, if the tolerance value is less than 0.10 there is concern. See table 7 for a summary. A correlation matrix was also run (see Table 6) using Pearson Correlation and no independent variable was above 0.7 meaning there are no issues with multicollinearity.

An analysis of standardized residuals was carried out to identify any outliers, which indicated two participants needed to be removed as their Std. Residual Min were below 3.29, however, they were only slightly below and due to the large sample size they were left in the final analysis. In addition, there were no values for Cook’s distance above 1 (Field, 2009).

Table 7

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>.708</td>
<td>1.41</td>
</tr>
<tr>
<td>Mastery</td>
<td>.536</td>
<td>1.87</td>
</tr>
<tr>
<td>Affiliation</td>
<td>.820</td>
<td>1.22</td>
</tr>
<tr>
<td>Meaning</td>
<td>.615</td>
<td>1.63</td>
</tr>
<tr>
<td>Detach Recov</td>
<td>.887</td>
<td>1.13</td>
</tr>
</tbody>
</table>

The assumption of normality was tested through visual inspection of a histogram of the standardized residuals, which indicated that the data contained approximately normally distributed errors (see appendix F). Normality was also assessed through the P-P plot of standardized residuals which showed points that were not completely on the line but close (see appendix F). Plotting the standardized residuals versus standardized
predicted values assessed the assumption of homoscedasticity. The assumption is met if the points appear randomly distributed and no apparent curvature. The assumption of homoscedasticity was met through visual inspection of the scatterplot (see appendix F) (Field, 2009).

The multiple regression model found that the five psychological mechanisms of the DRAMMA model statistically significantly predicted SWB, F(5, 698) = 19.28, p < .001, R² = .12, R² Adjusted = .115, indicating that approximately 12% of the variance in SWB is explainable by autonomy, mastery, affiliation, meaning, and detachment-recovery. The analysis shows, after controlling for the other predictors in the model, autonomy (β = .004, ns) and detachment-recovery (β = .05, ns) did not significantly predict SWB. However, after controlling for the other predictors in the model, mastery significantly predicted SWB (β = .097, p < .05). This indicates that on average, every one unit increase of Mastery will result in a 0.13 unit change in SWB. After controlling for the other factors in the model affiliation significantly predicted SWB (β = .195, p < .05). This indicates that on average, every one unit increase of Affiliation will result in a 0.22 unit change in SWB. In addition, after controlling for the other predictors in the model, meaning significantly predicted SWB (β = .146, p < .05). This indicates that on average, every one unit increase of Meaning will result in a 0.30 unit change in SWB. Table 8 summarizes the results of the regression model.
Table 8

*Results for Multiple Regression with the Five Psychological Mechanisms Predicting SWB*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>SE</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>1.33</td>
<td>0.41</td>
<td>0.00</td>
<td>3.23</td>
<td>.001</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.01</td>
<td>0.06</td>
<td>0.00</td>
<td>0.09</td>
<td>.932</td>
</tr>
<tr>
<td>Mastery</td>
<td>0.13</td>
<td>0.07</td>
<td>0.10</td>
<td>2.00</td>
<td>.046</td>
</tr>
<tr>
<td>Affiliation</td>
<td>0.22</td>
<td>0.04</td>
<td>0.19</td>
<td>4.97</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Meaning</td>
<td>0.30</td>
<td>0.09</td>
<td>0.15</td>
<td>3.22</td>
<td>.001</td>
</tr>
<tr>
<td>Detach_Recov</td>
<td>0.09</td>
<td>0.07</td>
<td>0.05</td>
<td>1.30</td>
<td>.193</td>
</tr>
</tbody>
</table>

*Note. $F(5,698) = 19.28, p < .001, R^2 = 0.12*

**Research Question 2**

Research question two is, “Do the five psychological mechanisms of the DRAMMA model predict leisure satisfaction?” In this multiple regression detachment-recovery, autonomy, mastery, meaning, and affiliation were the independent variables while leisure satisfaction was the dependent variable. When utilizing multiple regression several assumptions about the data must be tested in order to have valid results (Field, 2009). One assumption is to ensure there is no multicollinearity between the independent variables. Multicollinearity is when there are two or more independent variables that are highly correlated with each other leading to problems understanding which variable contributes to the variance. Tests to see if the data met the assumption of collinearity indicated multicollinearity was not a concern (Detachment-Recovery, Tolerance = .887, VIF = 1.127; Autonomy, Tolerance = .708, VIF = 1.412; Mastery, Tolerance = .536, VIF = 1.867; Meaning, Tolerance = .615, VIF = 1.625; Affiliation, Tolerance = .820, VIF = 1.219). High VIFs indicate increased effects of multicollinearity in the model. Variance Inflation Factors greater than 6 are cause for concern, whereas a VIF of 10 should be considered the maximum upper limit (Field, 2009). Additionally, if the tolerance value is
less than 0.10 there is concern. See table 7 for a summary. A correlation matrix was also run (see Table 6) using Pearson Correlation and no independent variable was above 0.7 meaning there were no issues with multicollinearity. An analysis of standardized residuals was carried out to identify any outliers, which showed the data contained no outliers (Std. Residual Min = -2.825, Std. Residual Max = 3.087). In addition, there were no values for Cook’s distance above 1 (Field, 2009).

The assumption of normality was tested through visual inspection of a histogram of the standardized residuals, which indicated that the data contained approximately normally distributed errors (see appendix G). Normality was also assessed through the P-P plot of standardized residuals which showed points that were not completely on the line but close (see appendix G). Plotting the standardized residuals versus standardized predicted values assessed the assumption of homoscedasticity. The assumption is met if the points appear randomly distributed and no apparent curvature. The assumption of homoscedasticity was met through visual inspection of the scatterplot (see appendix G) (Field, 2009).

The multiple regression model found that the five psychological mechanism of the DRAMMA model statistically significantly predicted leisure satisfaction, \( F(5, 698) = 196.34, p < .001, R^2 = .58, R^2_{\text{Adjusted}} = .58, \) indicating that approximately 58% of the variance in leisure satisfaction is explainable by autonomy, mastery, affiliation, meaning, and detachment-recovery. The analysis showed that after controlling for the other predictors in the model, autonomy, mastery, affiliation, and meaning significantly predicted leisure satisfaction. Autonomy significantly predicated leisure satisfaction (\( \beta = \)
This indicates that on average, every one unit increase of autonomy will result in a -0.09 unit change in leisure satisfaction. Mastery significantly predicted leisure satisfaction ($\beta = 0.080, p < .05$). This indicates that on average, every one unit increase of mastery will result in a 0.05 unit change in leisure satisfaction. Affiliation significantly predicted leisure satisfaction ($\beta = 0.341, p < .05$). This indicates that on average, every one unit increase of affiliation will result in a 0.17 unit change in leisure satisfaction. Meaning significantly predicted leisure satisfaction ($\beta = 0.608, p < .05$). This indicates that on average, every one unit increase of Meaning will result in a 0.54 unit change in leisure satisfaction. However, after controlling for the other predictors in the model, detachment-recovery ($\beta = 0.022, \text{ns}$) did not significantly predict leisure satisfaction. Table 9 summarizes the results of the regression model.

Table 9

Results for Multiple Regression with the Five Psychological Mechanisms Predicting Leisure Satisfaction.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>1.10</td>
<td>0.12</td>
<td>0.00</td>
<td>8.94</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-0.09</td>
<td>0.02</td>
<td>-0.15</td>
<td>-5.11</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Mastery</td>
<td>0.05</td>
<td>0.02</td>
<td>0.08</td>
<td>2.40</td>
<td>.017</td>
</tr>
<tr>
<td>Affiliation</td>
<td>0.17</td>
<td>0.01</td>
<td>0.34</td>
<td>12.64</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Meaning</td>
<td>0.54</td>
<td>0.03</td>
<td>0.61</td>
<td>19.55</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Detach_Recov</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.85</td>
<td>.395</td>
</tr>
</tbody>
</table>

Note. $F(5,698) = 196.34, p < .001, R^2 = 0.58$

Research Question 3

Research question three is, “Does leisure satisfaction predict SWB?” In this bivariate regression leisure satisfaction is the independent variable and SWB is the
dependent variable. When utilizing multiple regression several assumptions about the data must be tested in order to have valid results. There needs to be a linear relationship between the dependent and independent variable. A scatterplot (see appendix H) of SWB against leisure satisfaction was plotted. Visual inspection of the scatterplot indicated a linear relationship between the variables. The histogram of the standardized residuals indicated that the data contained approximately normally distributed errors (see appendix H). The P-P plot of standardized residuals showed points that were not completely on the line but close (see appendix H). In addition, there was homoscedasticity, as assessed by visual inspection of the scatterplot of standardized residuals versus standardized predicted values (see appendix H).

The linear regression model found that leisure satisfaction statistically significantly predicted SWB, $F(1, 702) = 76.05, p < .001, R^2 = .98, R^2_{Adjusted} = .96$, indicating that approximately 10% of the variance in SWB is explainable by leisure satisfaction. The analysis shows that leisure satisfaction ($\beta = .313, p < .05$), did significantly predict SWB. This indicates that on average, every one unit increase of Leisure Satisfaction will result in a 0.72 unit change in SWB. Table 10 summarizes the results of the regression model.

Table 10

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>2.00</td>
<td>0.33</td>
<td>0.00</td>
<td>6.07</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Leisure Sat</td>
<td>0.72</td>
<td>0.08</td>
<td>0.313</td>
<td>8.72</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

*Note. $F(1,702) = 76.05, p < .001, R^2 = 0.98$*
Research Question 4

Research question four is, “How well does the DRAMMA model explain SWB in a college student population?” Path analysis was used to test this question by assessing the overall model fit. The theoretical path model, presented in Figure 1, represents the DRAMMA model proposed by Newman, Tay, and Diener (2014). The theoretical path model shows the five physiological mechanisms of the DRAMMA model as exogenous variables, leisure satisfaction as an endogenous variable to SWB. Figure 3 shows the standardized estimates for the Path Diagram of the DRAMMA model when accounting leisure satisfaction, which is the basis for testing the overall model fit.

Figure 3. Standardized Tested Path Model

One of the main goals of the study was to test the DRAMMA model as a complete model, without accounting for the influence of the various types of leisure
engagement. Path analysis is an extension of regression that can be used to test the fit of a model. The path model had 28 observations and 23 parameters equaling 5 degrees of freedom, meaning the model was over-identified. Chi Squared equaled 27.607 at significance of p < .001, which is likely a result of a large sample size (Hooper, Coughlan, & Mullen, 2008). The following model fit indexes fall into one of two categories as recommended by Muller and Hancock (2010) and Hooper et al. (2008). The first category is absolute fit indices, which determine how well a theoretical model fits the sample data and which model has the most superior fit. Additionally, absolute fit indices evaluate the overall discrepancy between the observed and implied covariance matrices. The Standardized Root Mean Square Residual (SRMR) is the square root of the difference between the residuals of the sample covariance matrix and should fall below .08, with well fitting models obtaining values below .05 (Hooper et al., 2008). The SRMR for the theoretical model was .041 for this study. The second index is the Root Mean Square Error of Approximation (RMSEA). The RMSEA, is essentially the error term for the model, indicates how well the model with optimally chosen parameter estimates would fit the population’s covariance matrix and is considered one of the most informative fit indices. The RMSEA and its associated 90% confidence interval should fall below .05 to be considered excellent and .08 to be acceptable. The RMSEA for the theoretical model was .08.

The second category is incremental indices, also know as comparative or relative fit indices, which assess parsimonious fit relative to a baseline model, which is usually the independence model. Two different fit indices will be reported with the first being
the Normed Fit Index (NFI) that assumes that all measured variables are uncorrelated with values closer to 1 indicating a very good fit and a value above .9 being a good fit. The NFI was .980 for the theoretical model. Mueller and Hancock (2010) recommend reporting the Tucker Lewis Index (TLI) as it adjusts for small samples, but due to the large sample size for this study, it was not reported. The second index is the Comparative Fit Index (CFI), which is a revised version of the NFI as it takes into account sample size. The CFI was .984, with anything above .9 being a good fit, with above .95 being an excellent fit. See Table 11 for summary of model fit indicators.

Table 11

Summary of Path Analysis Model Fit Statistics

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA</th>
<th>CI LO 90</th>
<th>CI HI 90</th>
<th>NFI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default model</td>
<td>.04</td>
<td>.08</td>
<td>.05</td>
<td>.11</td>
<td>.98</td>
<td>.98</td>
</tr>
<tr>
<td>Saturated model</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Independence model</td>
<td>-</td>
<td>.31</td>
<td>.29</td>
<td>.32</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Exploratory Analysis

When respecifying the model, the analysis is considered exploratory as the recommendation is data driven and not theoretically driven (Mueller & Hancock, 2010). Even though the only insignificant path in the theoretical model was detachment-recovery to leisure satisfaction, it was not removed as Mueller and Hancock (2010) wrote, “We believe authors should leave nonsignificant paths in the model, as it preserves the originally theorized model while still communicating, that, with the model’s context, a hypothesized relation did not establish itself beyond chance” (p. 381).
The modification indices suggested a direct path from affiliation, mastery, and autonomy to SWB in order to increase the strength of the model. See Table 12 for a summary of modification indices. When modifying a model by including additional parameters it is important to consider if there is a theoretical basis for including them and if the existing model exhibits adequate fit (Byrne, 2009). This platform is an important consideration that must be addressed, as the suggestion to include additional paths could be a result of the random covariation in the sample and not indicative of the population (Mueller & Hancock, 2010).

Table 12

<table>
<thead>
<tr>
<th>Modifications</th>
<th>MI</th>
<th>Par Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliation ----&gt; SWB</td>
<td>12.65</td>
<td>.15</td>
</tr>
<tr>
<td>Mastery ----&gt; SWB</td>
<td>8.56</td>
<td>.14</td>
</tr>
<tr>
<td>Autonomy ----&gt; SWB</td>
<td>10.09</td>
<td>.17</td>
</tr>
</tbody>
</table>

For the theoretical model in this study the fit indices are all strong and exemplify excellent fit except for the RMSEA which is borderline acceptable under current cut-off points (Hooper et al., 2008). Based on the high RMSEA and theoretical support (Ryan & Deci, 2001; Ryan & Deci, 2000; Ryan, Huta, & Deci, 2008) the modification of adding a path from affiliation to SWB was worthy of exploration. The affiliation path was added first because it had the highest modification indices (12.65) and only one parameter should be added at a time (Schumacker & Lomax, 2010).

Once the direct path from affiliation to SWB was added the additional path indicated that affiliation significantly predicted SWB ($\beta = .16$, $p < .05$). The modification
analysis also showed the degree to which leisure satisfaction predicted SWB fell from $\beta = .313$ to $\beta = .24$. In addition, all the fit indices strengthened including the RMSEA, which was lowered to .052, which is just above the threshold for indicating an excellent fit. See Table 13 for a summary of the modified model fit statistics. With 4 degrees of freedom chi squared equaled 11.7 at significance of $p = < .020$, which is still below .05, which again is likely, a result of the large sample size. The first modified path model is presented in Figure 4. The modification indices indicated a need for an additional path from mastery to SWB. The MI was small at 5.8 with a par change of .12. Because all the fit indices fell within or very close to the excellent cut-off point, one can justify not adding the additional path. However, because there is theoretical support and we are in an exploratory stage, the model was run again adding the path from mastery to SWB.

### Table 13

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA</th>
<th>CI LO 90</th>
<th>CI HI 90</th>
<th>NFI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliation to SWB</td>
<td>.026</td>
<td>.052</td>
<td>.019</td>
<td>.088</td>
<td>.992</td>
<td>.994</td>
</tr>
<tr>
<td>Affiliation and Mastery to SWB</td>
<td>.013</td>
<td>.018</td>
<td>.000</td>
<td>.068</td>
<td>.997</td>
<td>1.00</td>
</tr>
<tr>
<td>Affiliation, Mastery, Autonomy to SWB</td>
<td>.009</td>
<td>.017</td>
<td>.000</td>
<td>.079</td>
<td>.998</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Once the direct path from mastery to SWB was added (see appendix K) the additional path indicated that mastery significantly predicted SWB ($\beta = .12$, $p < .05$). The modification analysis also showed the degree to which leisure satisfaction predicted SWB fell from $\beta = .24$ to $\beta = .19$, while affiliation to SWB fell from $\beta = .16$ to $\beta = .14$. In addition, all the fit indices strengthened to near perfect including the RMSEA, which was
lowered to .018, which indicates an excellent fit. See Table 13 for a summary of the modified model fit statistics. With 3 degrees of freedom chi squared equaled 3.67 at significance of \( p = < .299 \), which is above .05. After the path from mastery to SWB was added, no modification indices were suggested.

Even though no additional modification indices were suggested there is strong theoretical support to add the additional path of autonomy to the model. Once the direct path from autonomy to SWB was added (see appendix L) the modification analysis showed the degree to which leisure satisfaction predicted SWB slightly increased from \( \beta = .19 \) to \( \beta = .20 \), while mastery fell slightly from \( \beta = .12 \) to \( \beta = .10 \), and affiliation to SWB fell from \( \beta = .14 \) to \( \beta = .13 \). In addition, all the fit indices strengthened to near perfect including the RMSEA, which was lowered to .017, which indicates an excellent fit. See Table 13 for a summary of the modified model fit statistics.

Figure 4. Modified Path Model
Summary

Utilizing data collected through an electronically administered questionnaire, this chapter presented a detailed description of the instrument, data collection methods, response rate, data screening, demographic statistics, reliability, and the statistical analysis to answer the four proposed research questions. Descriptive results of the survey participants were presented in order to provide a broad understanding of the characteristics of the sample population. A reliability test was conducted on the various scales of the questionnaire in order to ensure the underlying dimensions were being appropriately measured. In addition, descriptive statistics were presented on the main variables of interest to gain insight into the overall responses of participants. After providing descriptive results, inferential statistical analyses were conducted starting with multiple regression models to understand the predictive influence of the five psychological mechanisms of the DRAMMA model on leisure satisfaction and SWB. A linear regression model was used to understand the predictive influence of leisure satisfaction on SWB. Path analysis was conducted to understand the mediation effect of leisure satisfaction on SWB, with the five psychological mechanisms of the DRAMMA model. Path analysis was also used to help gain insight into the overall fit of the DRAMMA model. Finally, an exploratory analysis was conducted based on the suggested modification indices and theoretical support. Overall, this chapter comprehensively analyzed the how leisure experiences of college students influences SWB as proposed by the DRAMMA model.
Chapter 5: Discussion

The purpose of this study was to test the DRAMMA model of leisure and SWB by examining the effects of the five psychological mechanisms on leisure satisfaction and SWB on a university student population. Caunt et al. (2013) recognized the need to understand how leisure activities facilitate happiness. A strong relationship between leisure and happiness has been established in the literature, however the cause of that relationship has not been looked at in a holistic manner.

This chapter contains a summary and discussion of the findings from the data analysis and recommendations for future research and practice. This study tested a significant portion of the DRAMMA model as proposed by Newman, Tay, and Diener (2014) through which conclusions for each of the four research questions are presented along with recommendations for future research and practice.

Research Findings and Discussion

Instrumentation.

The questionnaire developed for this study demonstrated strong reliability metrics, as measured by Cronbach’s Alpha, except for the autonomy and mastery scales, both of which were slightly adapted from the Basic Psychological Needs Scale (BPNS). The BPNS was developed to measure the degree to which the basic psychological needs for mastery, autonomy, and relatedness are met in an individual’s life, which is a central component of Self-Determination Theory and its sub theory, Basic Psychological Needs Theory (BPNT), (Deci & Ryan, 2000). The alpha coefficient for Autonomy was $\alpha = .678$ which is just below the .7 threshold for being acceptable. The questionable reliability was
surprising as Deci et al. (2001) reported acceptable alpha score ($\alpha = .79$) when the scale was used with an American sample. In addition, the BPNS has been used in physical activity (Ntoumanis, 2005) and sport (Lundberg et al., 2010) contexts where the reported alpha’s for the autonomy subscale were $\alpha = .70$ and $\alpha = .86$ for the scale as a whole. When looking at the item-total statistics without the question, “People I interact with during my leisure activity tend to take my feelings into consideration,” the alpha coefficient increased to $\alpha = .71$, which indicates low correlation with the other questions (see appendix I). Because of the marginal reliability in this study and others, it would be beneficial for future researchers to consider other scales or subscales to measure autonomy such as the Young Adult Autonomy Scale (O’Donnell, Chang, & Miller, 2013).

Similar to the autonomy subscale, mastery had a low alpha coefficient ($\alpha = .633$). Unlike autonomy, the low reliability was not surprising as other studies have reported borderline acceptable alpha coefficients, such as Deci et al. (2001) $\alpha = .73$ with an American sample and Gagne (2003) $\alpha = .71$. In addition, when the BPNS was used in a physical activity setting an alpha coefficient of $\alpha = .66$ was reported (Ntoumanis, 2005). When analyzing individual questions there was no question that could be removed that would increase the scale’s reliability (see appendix J). In fact, if any of the questions were removed the alpha coefficient would decrease. One possible reason for the low reliability is the subscale consists of too few items. Another reason could be the scale does not work with the college student population even though it has been used in a college setting, albeit with college football players (Readdy et al., 2014). However, the
alpha coefficient was not reported in this study. Because of the marginal reliability in this study and others, it would be beneficial for future researchers to consider other scales or subscales to measure mastery such as Intrinsic Leisure Motivation Scale competency subscale (Weissinger & Bandalos, 1995), Leisure Motivation Scale competency subscale (Beard & Ragheb, 1983), or the Recovery Experience Questionnaire mastery subscale (Sonnentag & Fritz, 2007). In addition, I made a conscious choice to not use the construct of flow to measure mastery even though Newman et al. (2014) found a strong connection between the two in the literature. The rationale for this decision was based primarily on the central role challenge and skill play in the theory of flow, while mastery considers learning opportunities, obtaining and honing in skills, and overall skill development. Considering that a secondary purpose of the study was to examine the instrument use when testing the DRAMMA model it would have been beneficial to test one of the several flow state scales (Jackson & Marsh, 1996; Jackson et al., 2008) and should be considered in future research.

In addition, examining the reliability coefficient for the subscales, the reliability of the BPNS as a whole was considered. The alpha score was $\alpha = .84$, which is considered good and consistent with other studies (Deci et al., 2001; Lundberg et al., 2010). When considering reliability, the BPNS performs better as a whole than as individual scales, indicating the potential justification for using the total need satisfaction score instead of the individual subscales.

As part of the original questionnaire, three different instruments were used to measure SWB. Each of the three instruments measured SWB using a different theoretical
approach. The Satisfaction With Life Scale (SWLS) developed by Diener et al. (1985) assessed global life satisfaction and was designed to measure the cognitive aspects of SWB. The Scale of Positive and Negative Experiences (SPANE) developed by Diener et al. (2010) which assesses positive and negative feelings was designed to measure the affective components of SWB. The Subjective Happiness Scale (SHS) developed by Lyubomirsky and Lepper (1999) measured both the cognitive and affective components of SWB. When looking at the reliability of each instrument (SWLS, $\alpha = .862$; SPANE Positive, $\alpha = .888$; SPANE Negative, $\alpha = .833$; SHS, $\alpha = .861$) none of them were substantially more reliable than one another. There was also significant positive correlation between the SHS and SWLS ($r = 0.60, p < .01$) indicating a strong association. There was a significant positive correlation between SHS and SPANE Balance score ($r = 0.67, p < .01$) indicating a strong association. The author found no study that combined the SWLS and SPANE to get a global SWB score. Therefore, because of the similar reliability coefficients, the significant and strong relationship, and the lack of support in the literature for combining the SPANE and the SWLS, the Subjective Happiness Scale was chosen as the final measure for SWB.

**Relationship among the five psychological mechanisms.**

Even though it was not a specific research question in this study, it is important to understand the relationship between the five psychological mechanisms and not just their influence on the dependent variables. Understanding the relationship is important, as they are independent constructs but influence each other in the overall model. Consistent with the theoretical relationship between the mechanisms, all had a significant positive
correlation with one another; however, most of the relationships were weak or moderate. The lack of strong relationship means that each of the constructs are related but are measuring a unique construct. The one strong correlation was between meaning and mastery ($r = 0.61$), which is logical and has theoretical support in the literature. Stebbins (1992) recognized the connection between meaning and mastery through the construct of serious leisure, which he defined as:

…the systematic pursuit of deep satisfaction through an amateur, hobbyist, or volunteer activity that participants find so substantial and interesting that, in the typical case, they launch themselves on a career centered on acquiring and expressing its special skill, knowledge, and experience. (p. 3)

Specifically, Stebbins recognized as individuals increase their level of commitment and obtain a greater level of skill through perseverance and significant effort they would develop durable and meaningful outcomes such as self-enrichment, self-actualization, self-expression, self-image, self-gratification, and re-creation of self. When developing the DRAMMA model Newman et al. (2013), recognized serious leisure supported the strong relationship between meaning and mastery when they wrote, “Meaning, like mastery, is also promoted by serious leisure’s model, as meaningful engagement and strong commitment are requisites of serious leisure” (p. 567). Besides connecting meaning and mastery through the Serious Leisure Model, several other researchers (e.g. Eakman, 2011; Goldberg et al., 2002; Porter, 2009) have made the connection by highlighting the need for mastery in recreation and leisure pursuits in order to have a meaningful leisure activity and experience(s). In addition, Iwasaki (2007, 2008)
concluded that regardless of cultural contexts the pathway to meaningful recreation and leisure experiences are facilitated by competency development across one’s lifetime.

The weakest relationship existed between detachment-recovery and affiliation followed closely by detachment-recovery and mastery. The lack of a strong relationship between detachment-recovery and affiliation has support in the literature. Affiliation in the context of leisure is the ability of an individual to socially connect with others through leisure experiences (Newman et al., 2014), which is the opposite of detachment-recovery. In order for detachment-recovery to occur, one must psychologically disengage from their obligations (Sonnentag & Bayer, 2005) and requires minimal social demand (Tinsley & Eldredge, 1995). However, it is important to recognize that Social activities were associated with higher levels of recovery when individuals experienced happiness during the activities. In other words, if a person wants to engage in a social environment or leisure activity (i.e., social events, team sports, group workout classes, etc.) as a way to overcome stress then it will facilitate the recovery process.

In terms of the weak relationship between detachment-recovery and mastery experiences there is support in the literature as relaxation/recovery oriented activities tend to be familiar and routine, allowing individuals to escape the stress of novelty. Additionally, people expect to experience relaxation from activities that are not challenging and require little physical and intellectual effort (Tinsley & Eldredge, 1995). However, when developing their Recovery Experience Questionnaire, Sonnentag and Fritz (2007) highlighted the need for mastery experiences as a part of an individual’s recovery experience as they offer the opportunity for competency and skill development.
This assertion led them to suggest, “Although mastery experiences might put additional demands on the individual, these experiences are expected to result in recovery because they will help to build up new internal resources such as skills, competencies, and self-efficacy” (p. 206). Even though they recognized the relationship between mastery experiences psychological-detachment and relaxation, there were weak relationships among the variables (psychological detachment and mastery, $r = 0.16$; relaxation and mastery, $r = 0.24$). It is important to recognize for the current study psychological detachment and relaxation were combined into a single composite score even though separating them is unlikely to change the weak relationship.

**Research question 1.**

As part of testing the model, it was imperative to know if the five psychological mechanisms of the DRAMMA model predict SWB. If the five psychological mechanisms did in fact explain, a significant portion of the variance in SWB then the need for leisure satisfaction in the model would be minimized. As established in the literature review the five psychological mechanisms are connected to SWB and in this study, they explained 12.1% of the variance in SWB. When controlling for the other factors in the model the largest predictor of SWB was affiliation, which is the ability to socially connect with others, ($\beta = .195, p < .001$) followed by meaning, which refers to gaining something important or valuable in life, ($\beta = .146, p < .001$). Indicating for the participants of this study, social relationship developed and nurtured through leisure experiences while also being meaningful, enhance SWB. Affiliation being a strong influence on SWB is consistent with findings from other studies (Lyubomirsky, King, et
al., 2005b; Rodríguez et al., 2008) and in particular with college students (Caunt et al., 2013; Tkach & Lyubomirsky, 2006). Developing meaning in one’s life is integral to happiness (Baumeister & Wilson, 1996) and is often developed through leisure engagement. The strong relationship between meaning found through leisure participation and SWB in this study is supported by previous research (Iwasaki, 2007; Wang & Wong, 2011).

However, autonomy did not significantly predict SWB, which is surprising but may have some theoretical support. Autonomy is based on the need to control one’s own behavior, sense of freedom, the ability to choose one’s own pathway, and govern oneself (Deci & Ryan, 1985; O’Donnell, Chang, & Miller, 2013). In the context of leisure autonomy manifests itself in one’s belief that they can freely choose to participate in a leisure activity (Newman et al., 2014). The result is surprising as previous research suggests that individuals report greater SWB with higher levels of perceived autonomy (O’Donnell et al., 2013; Sheldon et al., 2005, 1996; Sheldon & Niemiec, 2006); however, the Sheldon et al. (2005) study found that older Americans felt more autonomous in various social duties and life responsibilities. In addition, one of the tenants of psychological needs theory (BPNT) is autonomy, which has been strongly associated with SWB (Ryan & Deci, 2000, 2001; Ryan, Huta, & Deci, 2008). In this study, participants reported a higher level of autonomy in leisure than the other two basic physiological needs. It is important to recognize that these previous studies had some variables that were different from the current study and were not completed through the lens of leisure. Therefore, autonomy might have predicted SWB in other contexts, but
when viewed through leisure and coupled with the other psychological mechanisms of the DRAMMA model it does not predict SWB in this study’s sample. One theoretical reason that may explain the lack of influence of leisure autonomy on SWB is the fact that autonomy is an inherent component of leisure and to be considered leisure the activity must be voluntary, self-initiated, and based on an individual’s own choice (Archibald, 2008; Leversen et al., 2012). In other words, without autonomy an activity cannot be considered leisure; therefore, within the context of leisure simply by participating in their leisure activity students are autonomous. However, this idea does not take into account the influence of peer pressure, which is especially important to consider because affiliation is such a strong need for college students. In addition, autonomy is positivity correlated with all the other variables so it maybe suppressed by one or more of the other variables.

In addition to autonomy, detachment-recovery did not significantly predict SWB, which again is surprising based on previous research but also may have some theoretical support. Detachment-Recovery theory was developed in the context of needing to detach and recover from the psychological and physiological demands of work (Sonnentag & Fritz, 2007; Sonnentag & Bayer, 2005). Leisure as a strategy to facilitate detachment-recovery is useful because it implies that no further demands are made on the functional systems used as work (Sonnentag & Fritz, 2007). In other words, in order to recover from the stresses that one is under during work, engaging in leisure activities can be used as a strategy to relieve that stress and increase life satisfaction. When opportunities to detach and recovery are reduced stress increases, poor physiological function occurs and there is
a decrease in an individual’s well-being. When individuals indicate having a lack of leisure opportunities because of their emphasis on work they have a decrease in life satisfaction (Lounsbury & Hóopes, 1986). One reason the need for detachment-recovery might not predict SWB is college students have ample time and opportunity for leisure. Students indicated that leisure is very important to them and only spend more time sleeping than they do engaged in leisure (Mortenson, 2011), thus they do not feel a strong need for detachment-recovery through their leisure experiences in order to be happy as it is already a central part of their lives.

**Research question 2.**

Another component to testing the DRAMMA was to understand if the five psychological mechanisms predict leisure satisfaction. As established in the literature review the five psychological mechanisms are connected to leisure satisfaction and, in this study, they explained 58% of the variance in leisure satisfaction. By far the largest predictor of leisure satisfaction was meaning ($\beta = .61$, $p < .001$) which was almost double the second largest predictor of affiliation ($\beta = .34$, $p < .001$) indicating that in order for participants of this study to have high levels of leisure satisfaction they must develop a sense of meaning through their leisure experiences. Based on this study’s findings, students seem to gain something important, valuable, and personally fulfilling through their leisure experiences thus increasing their leisure satisfaction. For college students identity development is paramount during their college years (Evans, Fomey, Guido, Patton, & Renn, 2009) and when leisure experiences allow individuals to become the person they are, they indicate higher levels of happiness (Wang & Wong, 2011). The
connection between identity development and leisure provides further insight into why meaning is so important for college students. Therefore, when meaningful experiences are coupled with opportunities for affiliation the leisure experience becomes a powerful predictor of leisure satisfaction.

Interestingly detachment-recovery did not predict leisure satisfaction, which once again is surprising considering the strong association between leisure experiences facilitating detachment-recovery experiences in individuals. Similar to SWB the question of context must be considered as detachment-recovery was developed within the framework of leisure creating opportunities for recovery experiences from work and not school. College students in this study did not feel the need for detachment-recovery in order to experience leisure satisfaction. The findings are not saying individually detachment-recovery is not an important component of leisure satisfaction but when considered with the four other psychological mechanism detachment-recovery does not predict leisure satisfaction in the study’s sample. It would be interesting in future research to consider how stress level and time spent on leisure activities influences one’s leisure satisfaction.

Another interesting finding was after controlling for the other predictors in the model there was a negative relationship between autonomy and leisure satisfaction, meaning that when an individual’s perception of autonomy increases when engaging in leisure, their leisure satisfaction decreases. In other words, as an individual’s belief that they can freely choose to participate in a leisure activity their level of leisure satisfaction decreased, even if only slightly. Autonomy is seen as a basic psychological need but not
as a key component for increasing leisure satisfaction in this study. Once again, the definition of leisure must be considered, as autonomy is an inherent component of leisure. However, autonomy is positivity correlated with all the other variables so it maybe suppressed by one or more of the other variables. Future research should explore this psychological mechanism is greater detail in order to better understand leisure satisfaction among college students.

**Research question 3.**

The third research question in this study was, “Did leisure satisfaction predict SWB?” According to this study leisure satisfaction accounted for approximately 10 percent of the variance in SWB, which is a significant portion of SWB when you consider the causes of an individual’s happiness. Happiness is caused by 10 percent of life circumstances, 50 percent of genetic predisposition, and 40 percent of happiness increasing behaviors, with recreation and leisure falling into the latter category (Lyubomirsky, Sheldon, et al., 2005a). Therefore, for college students in this study leisure satisfaction was responsible for 25 percent of an individual’s happiness that he or she can control. In previous studies need satisfaction through leisure has accounted for up to 28 percent of the variance in life satisfaction (Rodríguez et al., 2008), 8.2 percent of the variance in SWB (Brajša-Žganec et al., 2011), and 14.8 percent of the variance in quality of life when accounting for attitude, satisfaction, use of resources, and participation (Lloyd & Auld, 2002). Additionally, Lloyd and Auld (2002) found similar results to this study in leisure satisfaction predictive ability quality of life ($\beta = .335$, $p < .001$) where this study was ($\beta = .313$, $p < .05$) for SWB. Additionally, out of the six
variables in the Lloyd and Auld (2002) study leisure satisfaction accounted for the greatest variance in quality of life.

**Research question 4.**

The fourth research question tried to address looking at the overall DRAMMA model, without accounting for leisure engagement, thus looked at whether the five psychological mechanisms of the DRAMMA model predicted SWB when including leisure satisfaction as a mediating variable.

One of the main goals of question four was to look at the overall strength of the model. Based on the model fit indices the overall model was excellent in all categories except for RMSEA which was borderline acceptable. Because of the borderline RMSEA it was important to consider the modification indices. Moving in this direction is completely exploratory in nature as the modification indices are data driven and not based on a theoretical foundation. In this study additional paths were suggested from affiliation, mastery, and autonomy all three of which are part of Self Determination Theory (Deci & Ryan, 2000) and utilized subscales from the same instrument, the Basic Psychological Needs Scale. Ryan and Deci have made a strong case for the direct connection between the three recommended modifications and happiness with Self Determination Theory as the foundation (Ryan & Deci, 2001; Ryan & Deci, 2000; Ryan, Huta, & Deci, 2008). In addition, through their basic psychological needs theory, a sub-theory of SDT, they furthered the connection by recognizing the impact of any activity on an individual’s well-being is directly related to the psychological needs of the person being met (Deci & Ryan, 2000). The overarching idea is that through pursuing intrinsic
goals, acting in a volitional way, and being mindful with a sense of awareness, one can satisfy the basic and universal psychological needs of affiliation, mastery, and autonomy, leading individuals to happier lives (Ryan, Huta, & Deci, 2008). In other words, psychological need satisfaction is hypothesized to mediate between intrinsically motivated goal attainment, volitional actions, and sense of self with well-being.

When adding additional paths it is important to add one at a time starting with the one with the highest modification indices (Schumacker & Lomax, 2010), which for this study was affiliation, which was added first in the modified model, followed by autonomy and mastery. Once a direct path from affiliation to SWB was added all the fit strengthened, including the RMSEA, which was just above the threshold for excellent fit. The outcome for this modification continues to add strength for the case that college students need affiliation in their leisure in order to be happy. When the direct path from affiliation was added autonomy was no longer a modification indices and only mastery remained. Based on the increased strength of the model by including a direct path from affiliation to SWB one could justify not adding any of the additional modification indices. However, because of the strong theoretical support and the desire to see how much it would improve the model, a direct path from mastery to SWB was added. Once the mastery was added, the fit indices became near perfect, with RMSEA falling well into the excellent category.

**General Discussion**

Through this research, it appears that students in this sample value meaningful leisure experiences that offer opportunities for social interaction. When these two
psychological mechanisms are experienced, students indicate higher levels of leisure satisfaction and SWB. Additionally, these two variables have a weak correlation, which highlights their individual and unique role in predicting leisure satisfaction and SWB in college students.

Detachment-recovery’s influence in the model should be further considered based on this study, because when controlling for the other predictors it did not predict leisure satisfaction or SWB in our sample. In previous research, engaging in leisure has increased detachment-recovery experiences and shown to be a positive influence on SWB (Fritz & Sonnentag, 2006; S Sonnentag & Fritz, 2007; Sonnentag, 2001). Even though detachment-recovery was not an important factor in this study, that does not mean it is not predictive of leisure satisfaction and SWB in other similar samples and populations. In addition, Mueller and Hancock (2010) recommended leaving non-significant paths in the model as it was tested within a certain context and the paths might be significant in other contexts.

The role mastery plays in the DRAMMA model was surprising as it held similar, but very small, predictive strength with both leisure satisfaction and SWB. Mastery is the degree to which one’s leisure activities provide opportunities to challenge and provide learning opportunities for skill development. Considering college is a time of intellectual challenge that offers opportunities to develop new knowledge, one could conjecture that students desire experiences that enhance this mechanism. However, according to this study, it was not as important of attribute as meaning and affiliation. If students were using their leisure as an outlet to detach and recovery from the stress of school, then the
moderate desire for mastery experiences would be logical, but this is not the case in this study. Previous studies with similar theoretical support have shown comparable results when looking at skill development satisfaction in leisure and life satisfaction (Rodríguez et al., 2008). However, in a study of adolescents using the three basic psychological needs, competence was the strongest predictor of life satisfaction (Leversen et al., 2012). One possible explanation could be the high correlation between mastery and leisure satisfaction ($r = 0.50, p < .001$), and the high correlation between meaning and mastery ($r = 0.61, p < .001$) indicating a potential relationship between the variables.

**Implications for Practice**

When conducting any research, it is important to connect the findings back to professional practice. Considering the frequency of depressive episodes among college students (NIH, 2014) and the fact emotional health among college freshman is at its lowest point in three decades, higher education and recreation professionals should consider providing intentional programming to maintain and increase happiness to be of paramount importance. Through intentional leisure programming, there is a potential to reduce the need or frequency of mental health therapy and potentially reduce the amount of psychotropic drugs being prescribed. With that in mind, practitioners should develop recreation and leisure programs that are meaningful in addition to programs that offer opportunities for social interaction. Often times recreation and leisure professionals develop opportunities under the pretense of skill development being a priority consideration. However, based on this research skill development should be a secondary consideration. In addition, leisure professionals should advocate for teaching college
students how to engage in constructive leisure activities. Robinson (2003) argued in his book, *Work to Live*, for teaching students a “leisure skill set” much like we teach financial literacy, as society has not learned how to engage in leisure as we focus most of our energy on work.

In addition, to offering opportunities for meaning and affiliation, recreation professionals should promote the role recreation and leisure plays in facilitating happiness among college students as leisure satisfaction accounted for approximately 10 percent of an individual’s overall happiness. Often times recreation is seen as a nonessential part of the student experience but if colleges and universities value happiness as an outcome then they should intentionally plan leisure activities to develop four of the five psychological mechanisms.

Another interesting consideration is the role autonomy plays in leisure satisfaction and happiness. Considering the idea of perceived control in leisure choice is not an important predictor for students’ happiness and has a negative predictive relationship with leisure satisfaction, institutions of higher education may consider how to integrate or strongly encourage “mandatory” leisure participation. However, autonomy is positivity correlated with all the other variables so it maybe suppressed by one or more of the other variables. One way this might be achieved is through the various physical activity and wellness courses offered on many campuses (i.e., basketball, weight training, yoga, etc.). Historically, these courses were a part of the general education requirement but have started to come out of favor on many campuses around the country. The challenge with
this approach is if the course is required and involves academic oriented curriculum would students still consider it leisure.

**Future Research**

Because this is a new model, there are significant opportunities for future research. The first recognized area for future research is understanding that different components of the model may have greater influence on SWB based on the group being studied. For instance, detachment-recovery did not predict leisure satisfaction or SWB in our sample, but that does not necessarily mean it does not influence either variable in different populations. Therefore, the first major opportunity for future research is to study the model with other demographic groups. Because this study was completed with college students who have more leisure time than many other groups within American society, it would be interesting to see how the model holds up with individuals with less leisure time (i.e., working adults) and those with more leisure time (i.e., retired individuals).

Another area for future research is to include leisure engagement as part of future studies. Being a bottom-up model, with leisure engagement as the first layer, the DRAMMA model recognizes the role leisure engagement plays in influencing the rest of the model and in particular the five psychological mechanisms. Therefore, in order to continue the process of validating the model the role leisure engagement plays must be empirically researched. Kuykendall, Tay, and Ng (2015) in their meta-analysis looked at part of the model by highlighting the influence of leisure engagement has on SWB via leisure satisfaction. In addition, it would be worthwhile to look at various categories (i.e.,
passive vs. active) and characteristics (i.e., frequency, duration, variety, quality, etc.) of leisure and how they influence the model. Several past studies have developed different categories for various types of leisure (Brajša-Žganec et al., 2011; Lloyd & Auld, 2002; Rodríguez et al., 2008; Tinsley & Eldredge, 1995) which could be used as a basis for this line of research.

Another potential area for research would be to test the DRAMMA model while taking into account the type of work in which individuals engage. Certain types of leisure may complement certain types of work. For instance, if someone receives high levels of affiliation at work they may increase their SWB by engaging in leisure that enhances the other psychological mechanisms. The inverse is important to consider as well. An individual may be lacking a certain psychological mechanism at work and may benefit from engaging in leisure activities offer opportunities to enhance the mechanisms that are lacking (Driver et al., 1991). One recent study has begun to look at this idea through the basic psychological needs but does not do so within the context of the DRAMMA model, but recognizes the need for this research (Walker, 2016).

Finally, it would be worthy for future research to test the model while taking into account various antecedent variables such as leisure motivation, personality characteristics, demographic variables, along with others. These variables have been shown to influence leisure choice, leisure satisfaction, and SWB. It would be of great benefit to recreational and leisure programmers, in terms of offering targeted programming opportunities, to understand which antecedent conditions influence leisure
choice and how those choices impact the five psychological mechanisms, leisure satisfaction, and SWB.

**Summary**

This study was able to add a significant contribution to understanding how leisure experiences helps to facilitate happiness for individuals, and in particular college students. Overall, the instrument in this study performed well but there were a few areas that future researchers should consider if they chose to study similar constructs. This research shows the significant role social relationships and meaning in leisure experiences play in predicting happiness in college students. Even though there is a strong theoretical relationship, this indicates the need to study the relationship between autonomy and detachment-recovery and happiness in greater detail. Overall, the parts of the DRAMMA model tested is well thought out and has strong support both theoretically and empirically, however future research is needed in order to validate the model beyond college students. Future research needs to consider the role of leisure engagement, leisure type, antecedent conditions, and further explore the relationship between leisure choice, type of work, and the DRAMMA model. Additionally, if developing happiness is a desired outcome, this research provides a strong foundation and justification for both higher education and leisure professionals to advocate for leisure as part of the college experience.
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Appendix A: DRAMMA Questionnaire

Directions: Please read each of the following items carefully, thinking about how it relates to your life, then answer the following questions to reflect your opinions as accurately as possible.

Section A- Demographic Information

Demographic Information
Please answer the following questions accurately and to the best of your ability.

1. Are you an undergraduate student at Ohio University?
   a. Yes
   b. No
   If No Is Selected, Then Skip To End of Survey

2. What year in school are you?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior

3. How old are you? __________________________

4. How do you describe yourself?
   a. Male
   b. Female
   c. Transgender
   d. Do not identify as male, female, or transgender

5. What is your current cumulative Grade Point Average (GPA)? Round to then nearest tenth.
   __________

6. How many credit hours are you currently taking? __________________________

7. On average how many hours a week do you work in an on or off campus job?
   __________

8. What is your academic major? If you are undecided please indicate.
   ____________________________________________
Leisure Pursuit Information

9. What is your favorite and most enjoyable leisure/recreation activity?
* The leisure/recreation activity you choose will apply to later questions
__________________________________________________________________

10. How committed are you to your chosen leisure/recreation activity (as indicated previously)?
   Not at all  Slightly  Moderately  Very  Extremely

11. How many years have you been participating in the above leisure/recreation activity?

12. How often do you participate in the above leisure/recreation activity?
   a. A few times a year
   b. Once a month
   c. 2-3 Times a month
   d. Once a week
   e. 2-3 Times a week
   f. 4 or more times a week

13. On average how long do you spend, per session/experience, participating in the above leisure/recreation activity?
   a. More than 9 hours
   b. 7-8 hours
   c. 5-6 hours
   d. 3-4 hours
   e. 1-2 hours
   f. Less than 1 hour

14. Where do you engage in the above leisure/recreation activity?
   a. Indoors
   b. Outdoors
   c. Both

Section B- Psychological Outcomes of Leisure Participation

Autonomy, Mastery, and Affiliation
Please read each of the following items carefully, thinking about how it relates to your chosen leisure activity (as indicated previously), and then indicate the extent to which each statement is true for you

<table>
<thead>
<tr>
<th>#</th>
<th>Statement</th>
<th>1 Not At All True</th>
<th>2</th>
<th>3</th>
<th>4 Somewhat True</th>
<th>5</th>
<th>6</th>
<th>7 Very True</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>I feel like I am free to decide for myself how I participate in my leisure activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
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<tr>
<td>16</td>
<td>I really like the people I interact with when participating in my leisure</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Activity</td>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>I do not feel very competent when I participate in my leisure activity</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>I feel pressured when I participate in my leisure activity</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>People I know tell me I am good at my leisure activity</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>I get along with people I interact with during my leisure activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>I pretty much keep to myself and don't have a lot of social contacts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>I am free to express my ideas and opinions during my leisure activity</td>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>I consider the people I regularly interact with during my leisure</td>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>When participating in my leisure activity, I frequently have to do</td>
<td>1</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>People I interact with during my leisure activity care about me</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>Most days I feel a sense of accomplishment through participating in my</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>People I interact with during my leisure activity tend to take my</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>During my leisure activity I do not get much of a chance to show how</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>There are not many people who I interact with during my leisure</td>
<td>1</td>
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<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>I feel like I can pretty much be myself during my leisure activity</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>The people I interact with during my leisure activity do not seem to</td>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>I often do not feel very capable during my leisure activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>There is not much opportunity for me to decide for myself how to</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>People are generally pretty friendly towards me when I am involved in</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
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</tbody>
</table>
Meaning
Please read each of the following items carefully, thinking about how it relates to your chosen leisure activity (as indicated previously), and then indicate the extent to which each statement is true for you.

<table>
<thead>
<tr>
<th>#</th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>The leisure activity I do helps me take care of myself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>37</td>
<td>The leisure activity I do reflects the kind of person I am</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>38</td>
<td>The leisure activity I do expresses my creativity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>39</td>
<td>The leisure activity I do helps me achieve something which gives me a sense of accomplishment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>40</td>
<td>The leisure activity I do contributes to feeling competent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>41</td>
<td>The leisure activity I do is valued by other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>42</td>
<td>The leisure activity I do helps other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>43</td>
<td>The leisure activity I do gives me pleasure</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>44</td>
<td>The leisure activity I do gives me a feeling of control</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>45</td>
<td>The leisure activity I do helps me express my personal values</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>46</td>
<td>The leisure activities I do gives me a sense of satisfaction</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>47</td>
<td>The leisure activity I do has just the right amount of challenge</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Detachment and Recovery
Please read each of the following items carefully, thinking about how it relates to your chosen leisure activity (as indicated previously), and then indicate how strongly you agree or disagree.

<table>
<thead>
<tr>
<th>#</th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>I forget about work and/or school during leisure time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>49</td>
<td>During leisure time I don’t think about work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
and/or school at all

50 | I distance myself from my work and/or school during leisure time | 1 | 2 | 3 | 4 | 5
51 | During leisure time I get a break from the demands of work and/or school | 1 | 2 | 3 | 4 | 5
52 | I kick back and relax during my leisure time | 1 | 2 | 3 | 4 | 5
53 | I do relaxing things during my leisure time | 1 | 2 | 3 | 4 | 5
54 | I use leisure time to relax | 1 | 2 | 3 | 4 | 5
55 | I take time for leisure | 1 | 2 | 3 | 4 | 5

Section C- Leisure Satisfaction

Please read each of the following items carefully, thinking about how it relates to your chosen leisure activity (as indicated previously), and then indicate how strongly you agree or disagree.

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Neutral</th>
<th>4 Agree</th>
<th>5 Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>My leisure activity is very interesting to me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>57</td>
<td>My leisure activity gives me self-confidence</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>58</td>
<td>My leisure activity gives me a sense of accomplishment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>59</td>
<td>I use many different skills and abilities in my leisure activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>60</td>
<td>My leisure activity increases my knowledge about things around me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>61</td>
<td>My leisure activity provides opportunities to try new things</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>62</td>
<td>My leisure activity helps me to learn about myself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>63</td>
<td>My leisure activity helps me to learn about other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>64</td>
<td>I have social interaction with others through my leisure activity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>65</td>
<td>My leisure activity has helped me to develop close relationships with others</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>66</td>
<td>The people I meet in my leisure activity are friendly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>67</td>
<td>I associate with people in my free time who enjoy doing my leisure activity a great deal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>68</td>
<td>My leisure activity helps me to relax</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>My leisure activity helps relieve stress</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>70</td>
<td>My leisure activity contributes to my emotional well-being</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>71</td>
<td>I engage in my leisure activity simply because I like doing it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>72</td>
<td>My leisure activity is physically challenging</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>73</td>
<td>My leisure activity develops my physical fitness</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>74</td>
<td>My leisure activity restores me physically</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>75</td>
<td>My leisure activity helps me to stay healthy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>76</td>
<td>The area or places where I engage in my leisure activity are fresh and clean</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>77</td>
<td>The areas or places where I engage in my leisure activity are interesting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>78</td>
<td>The areas or places where I engage in my leisure activity are beautiful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>79</td>
<td>The areas or places where I engage in my leisure activity are well designed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Section D- Subjective Well-Being**

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

80. In general, I consider myself:

<table>
<thead>
<tr>
<th>Not a Very Happy Person</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Very Happy Person</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

81. Compared to most of my peers, I consider myself:

<table>
<thead>
<tr>
<th>Less Happy</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

82. 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?

<table>
<thead>
<tr>
<th>Not at All</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Great Deal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Not at All</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Great Deal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Life Satisfaction
Below are five statements with which you may agree or disagree. Using the 1-7 scale below indicate your agreement with each item by clicking on the appropriate number. Please be open and honest in your responding

84. In most ways my life is close to ideal

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

85. The conditions of my life are excellent

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

86. I am satisfied with my life

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

87. So far I have gotten the important things I want in life

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

88. If I could live my life over I would change almost nothing

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Positive and Negative Feelings
Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select one of the following responses.

<table>
<thead>
<tr>
<th>#</th>
<th>Positive</th>
<th>Negative</th>
<th>Good</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>1 Very Rarely or Never</td>
<td>2 Rarely</td>
<td>3 Sometimes</td>
<td>4 Often</td>
</tr>
<tr>
<td>90</td>
<td>1 Very Rarely or Never</td>
<td>2 Rarely</td>
<td>3 Sometimes</td>
<td>4 Often</td>
</tr>
<tr>
<td>91</td>
<td>1 Very Rarely or Never</td>
<td>2 Rarely</td>
<td>3 Sometimes</td>
<td>4 Often</td>
</tr>
<tr>
<td>92</td>
<td>1 Very Rarely or Never</td>
<td>2 Rarely</td>
<td>3 Sometimes</td>
<td>4 Often</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>93</td>
<td>Pleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>94</td>
<td>Unpleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>95</td>
<td>Happy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>96</td>
<td>Sad</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>97</td>
<td>Afraid</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>98</td>
<td>Joyful</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>99</td>
<td>Angry</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>100</td>
<td>Contented</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix B: Email Request for Research Participation

Title: Invitation to Participate in Research on the Relationship Between Leisure Participation and Happiness.

Dear: (students name)

My name is Danny Twilley a doctoral student in the Higher Education Administration program at Ohio University conducting research on how undergraduate college students’ leisure participation influences their happiness. I am writing to request your participation in a brief online survey. You must be 18 years of age or older to participate in the study. By participating in the study, you will help grow the body of knowledge on the importance of leisure participation and the field of positive psychology.

The survey is brief and will take approximately 10 minutes to complete. Please click the link below to go to the survey website (or copy and paste the link into your Internet browser).

Survey Link:

Your participation in the survey is voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses.

If you have any questions regarding this research please contact me at twilley@ohio.edu or 740-597-3109. Thank you very much for your time and cooperation

Sincerely,

Danny Twilley
Doctoral Student
Higher Education Administration
Appendix C: Ohio University Online Consent Form

Title of Research: Quantitatively Testing the DRAMMA Model of Leisure and Subjective Well-Being on College Students

Researchers: Danny Twilley

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to participate in this study.

Explanation of Study
This study is being done to help grow the body knowledge on the importance of leisure participation and the field of positive psychology by understanding how undergraduate college students’ leisure participation influences their happiness.

If you agree to participate, you will be asked to complete an anonymous online survey.

You should not participate in this study if you are under 18 years old, a graduate student, or do not attend Ohio University.

Your participation in the study will last approximately 15 minutes.

Risks and Discomforts
No risks or discomforts are anticipated

Benefits
This study is important to science/society because it will help to expand the knowledge of the leisure’s role in society and the impact it can have on individual’s happiness.

Individually, there are no direct benefits.

Confidentiality and Records
Your study information will be kept confidential by utilizing an online survey instrument that will not track user information. In addition, no personally identifiable questions will be asked.

For maximum confidentiality, please clear your browser history and close the browser before leaving the computer. Additionally, while every effort will be made to keep your
study-related information confidential, there may be circumstances where this information must be shared with:

* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU;

**Contact Information**

If you have any questions regarding this study, please contact the Danny Twilley at twilley@ohio.edu or 740-597-3109 or the advisor Dr. Peter Mather at matherp@ohio.edu or 740-593-4454.

If you have any questions regarding your rights as a research participant, please contact Dr. Chris Hayhow, Director of Research Compliance, Ohio University, (740)593-0664 or hayhow@ohio.edu.

By agreeing to participate in this study, you are agreeing that:

- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered;
- you have been informed of potential risks and they have been explained to your satisfaction;
- you understand Ohio University has no funds set aside for any injuries you might receive as a result of participating in this study;
- you are 18 years of age or older;
- your participation in this research is completely voluntary;
- you may leave the study at any time; if you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled.

Version Date: 02/15/16
Title: Special Request to Participate in Research on the Relationship Between Leisure Participation and Happiness.

Dear: REC and/or PED Student

My name is Danny Twilley a doctoral student in the Higher Education Administration program at Ohio University conducting research on how undergraduate college students’ leisure participation influences their happiness. Because you took a REC or a PED class this academic year, you are an ideal participant for this study, as you already understand the value of leisure in your life.

I am writing to request your participation in a brief online survey. **You must be 18 years of age or older to participate in the study.** By participating in the study, you will help grow the body of knowledge on the importance of leisure participation and the field of positive psychology.

The survey is brief and will take approximately 10 minutes to complete. Please click the link below to go to the survey website (or copy and paste the link into your Internet browser).

Survey Link:

Your participation in the survey is voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses.

If you have any questions regarding this research please contact me at twilley@ohio.edu or 740-597-3109. Thank you very much for your time and cooperation

Sincerely,

Danny Twilley
Doctoral Student
Higher Education Administration
Appendix E: Cross Tabulation for Demographic Variables

<table>
<thead>
<tr>
<th>Year in School</th>
<th>Commitment</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>% within</td>
<td>2.6%</td>
<td>6.1%</td>
<td>33.2%</td>
<td>33.1%</td>
<td>27%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>0.7%</td>
<td>1.7%</td>
<td>9.2%</td>
<td>8.7%</td>
<td>7.5%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>% within</td>
<td>0.0%</td>
<td>8.8%</td>
<td>36.3%</td>
<td>38.8%</td>
<td>16.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>0.0%</td>
<td>2.0%</td>
<td>8.2%</td>
<td>8.8%</td>
<td>3.7%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Junior</td>
<td>% within</td>
<td>1.8%</td>
<td>8.5%</td>
<td>28.5%</td>
<td>40.6%</td>
<td>20.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>0.4%</td>
<td>2.0%</td>
<td>6.7%</td>
<td>9.5%</td>
<td>4.8%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Senior</td>
<td>% within</td>
<td>0.5%</td>
<td>5.5%</td>
<td>35.5%</td>
<td>41%</td>
<td>17.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>0.1%</td>
<td>1.4%</td>
<td>9.2%</td>
<td>10.7%</td>
<td>4.5%</td>
<td>26.0%</td>
</tr>
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### Gender by Commitment to Leisure Activity Cross Tabulation

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<td>9</td>
<td>23</td>
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<td>11.5%</td>
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## Gender by Frequency of Participation Cross Tabulation

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<th>Female</th>
<th>% within</th>
<th>% of Total</th>
<th>Transgender</th>
<th>% within</th>
<th>% of Total</th>
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<th>% within</th>
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<th>Total</th>
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<td>% of Total</td>
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<td>57.8%</td>
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Appendix F: Regression Charts for Psychological Mechanisms to SWB

Histogram
Dependent Variable: Subjective Happiness Score

Mean = 1.85E-15
Std. Dev. = 0.396
N = 794
Normal P–P Plot of Regression Standardized Residual
Dependent Variable: Subjective Happiness Score
Appendix G: Regression Charts for Psychological Mechanisms to Leisure Satisfaction

Histogram

Dependent Variable: Leisure Satisfaction Score

Mean = -1.14E-15
Std. Dev. = 0.996
N = 704
Normal P–P Plot of Regression Standardized Residual
Dependent Variable: Leisure Satisfaction Score
Appendix H: Regression Charts for Leisure Satisfaction to SWB
Histogram
Dependent Variable: Subjective Happiness Score

Mean = $-7.73 \times 10^{-16}$
Std. Dev. = 0.999
N = 704
Normal P–P Plot of Regression Standardized Residual

Dependent Variable: Subjective Happiness Score
Appendix I: Autonomy Subscale Item Total Statistics

<table>
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<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel like I am free to decide for myself how I participate in my leisure activity</td>
<td>34.78</td>
<td>29.012</td>
<td>.470</td>
<td>.247</td>
<td>.625</td>
</tr>
<tr>
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<td>35.05</td>
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<td>.246</td>
<td>.624</td>
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<td>I am free to express my ideas and opinions during my leisure activity</td>
<td>34.95</td>
<td>28.595</td>
<td>.500</td>
<td>.347</td>
<td>.618</td>
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<td>26.956</td>
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<td>.680</td>
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<td>People I interact with during my leisure activity tend to take my feelings into consideration</td>
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<td>31.398</td>
<td>.160</td>
<td>.180</td>
<td>.709</td>
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<tr>
<td>I feel like I can pretty much be myself during my leisure activity</td>
<td>34.80</td>
<td>29.847</td>
<td>.454</td>
<td>.254</td>
<td>.632</td>
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<td>Autonomy Q20 Reverse Coded</td>
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### Appendix J: Mastery Subscale Item Total Statistics

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<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
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</thead>
<tbody>
<tr>
<td>Competence Q3 Reverse Coded</td>
<td>27.96</td>
<td>23.377</td>
<td>.318</td>
<td>.185</td>
<td>.609</td>
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<tr>
<td>People I know tell me I am good at my leisure activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I have been able to learn interesting new skills by being involved my leisure activity</td>
<td></td>
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</tr>
<tr>
<td>Most days I feel a sense of accomplishment through participating in my leisure activity</td>
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<td>23.980</td>
<td>.383</td>
<td>.243</td>
<td>.584</td>
</tr>
</tbody>
</table>
Appendix K: Modified Path Model with Affiliation and Mastery
Appendix L: Modified Path Model with Affiliation, Mastery, and Autonomy