Testing the DRAMMA Model of Leisure and Subjective Wellbeing on College Students

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ABSTRACT

Background: College students' declining mental health is a growing concern among institutions of higher education. Although many campuses have provided additional mental health counselors, identifying other mechanisms that facilitate and enhance mental health and wellbeing is also justified.
Aim: Using the DRAMMA model as a theoretical framework, this research examined how leisure influences college students' subjective wellbeing.
Methods: An online survey methodology was utilized to measure the psychological outcomes of leisure participation (DRAMMA), leisure satisfaction, and subjective wellbeing of 704 students attending a large 4-year Midwestern residential college.
Results: This quantitative study found the five psychological mechanisms of the DRAMMA model (detachment-recovery, autonomy, mastery, meaning, and affiliation) influenced students' leisure satisfaction and subjective wellbeing.
Conclusion: The findings support the need for higher education professionals to create leisure experiences that provide meaning and affiliation to promote subjective wellbeing and improve mental health.

BACKGROUND

Institutions of higher education are among the sectors of society that have increasingly focused attention on happiness and wellbeing (Cockell & McArthur-Blair, 2012; Harward, 2016). The justification for such focus is extensive but ultimately pertains to helping develop healthy, productive, and thriving students (Mather & Hulme, 2013). In a review of the literature on student success, Kuh et al. (2006) concluded that preparing students to live with high measures of subjective wellbeing (SWB) is an important function of higher education.

Providing an environment that fosters happiness and wellbeing is more important than ever as college students are experiencing greater levels of anxiety, depression, and psychological stress (Baik et al., 2019; Lattie et al., 2019;

Oswalt et al., 2018). This is problematic since psychological distress negatively impacts multiple aspects of life including academic success and physical health and cognitive, emotional, and interpersonal functioning, and overall quality of life (Akeman et al., 2019; Baik et al., 2019; Conley et al., 2015). Research has found that cultivating wellbeing can reduce the frequency with which an individual experiences negative emotions, negative behaviors, and negative thoughts that are risk factors for mental health problems (Lyubomirsky & Layous, 2013). Considering the rise in rates of depression and anxiety in the college population and the need for administrators to provide programs and services that enhance mental health, a study that explores specific factors contributing to SWB in college students is warranted.

One-way leaders in higher education can create health-promoting environments that enhance and nurture students' wellbeing is through leisure and recreation programs. Leisure is one of the primary facilitators of happiness and SWB (Diener et al., 2015; Lyubomirsky et al., 2005; Newman et al., 2014; Parsons et al., 2020). Leisure's influence on happiness is multifaceted: it provides opportunities for detachment-recovery from stress, including work-related pressures, autonomy, mastery, meaning, and affiliation (DRAMMA), which all influence life satisfaction (Kuykendall et al., 2015; Newman et al., 2014).

Kuykendall et al. (2015) conducted a systematic review along with meta-analyses on four decades of research exploring leisure engagement, leisure satisfaction, and SWB. The authors' review revealed a strong positive relationship between leisure engagement and subjective wellbeing. Findings indicated that leisure engagement was as strongly related to SWB as income, social activities, and occupational status. The study supported findings that leisure interventions could improve SWB in the targeted populations of retired individuals and disabled individuals; however, there were no included studies on college students. Overall results showed that leisure was a promising domain for enhancing SWB. While extensive, Kyukendall et al.'s (2015) findings did not specifically look at college students and the impact that leisure has on their levels of SWB.

Leisure satisfaction has been found to be impactful for college students. Kim et al. (2015) investigated students' involvement in leisure activities during their free time and found that satisfaction derived from participation enhanced students' psychological and physical wellbeing. With leisure as a key facilitator of SWB, it is important to better understand the role leisure satisfaction might have on college students' wellbeing. Research supports the positive role participating in leisure activities has on SWB (Iwasaki, 2007; Newman et al., 2014; Rodríguez et al., 2008). However, few studies have focused on and empirically investigated how leisure participation facilitates SWB (Wang & Wong, 2011), particularly the psychological outcomes of leisure engagement and satisfaction (Tinsley & Eldredge, 1995) for college students.

A significant gap in the literature exists because few studies have focused on and empirically investigated the manner in which leisure activity participation facilitates SWB. To determine how well the DRAMMA model explains SWB in a college-student population, we replicated the path model tested by Twilley et al. (2022) based on the theoretical model proposed by Newman et al. (2014). Twilley et al. (2022) used the framework to assess college students who identified as campus recreation users. The authors found that for campus recreation participants, meaningful leisure significantly predicted SWB. The current study looked to incorporate more breath by analyzing all students as opposed to just those seeking recreational services on campus. As a contemporary model, DRAMMA has been utilized in relatively few quantitative studies to date and this study was the first to look at an entire college student population on one campus.

DRAMMA Model

The theoretical framework utilized in this study is based on the DRAMMA model which links leisure to subjective wellbeing through leisure satisfaction and five psychological mechanisms (Newman et al., 2014): (1) detachment-recovery, (2) affiliation, (3) mastery, (4) meaning, and (5) autonomy. The five psychological mechanisms are based on prominent theories within the literature on subjective wellbeing and leisure including Self-Determination Theory (Ryan & Deci, 2000), Hierarchy of Needs (Maslow, 1943), dimensions of psychological well-being (Ryff & Keyes, 1995), and Flow Theory (Csikszentmihalyi, 1990). Detachment-recovery is defined as the degree to which an individual is able to utilize leisure to detach and recover, both psychologically and physiologically, from work and other obligations. Autonomy is defined as the degree to which an individual freely chooses to participate in a leisure activity. Mastery refers to the degree to which a leisure activity challenges and provides learning opportunities for individuals to improve their skills and achieve a new level of success. Meaning refers to the means and process where individuals gain something important or valuable in life through leisure. Affiliation is defined as the ability of an individual to socially connect with others through leisure experiences (Newman et al., 2014).

Subjective Wellbeing and Leisure Satisfaction

SWB, often operationalized in current research as happiness, is defined as how individuals evaluate their life satisfaction and is measured by the frequency with which they experience both positive and negative emotions (Diener & Suh, 1999; Diener et al., 1999; Newman et al., 2014; Zacher & Rudolph, 2021). Participation in diverse leisure and recreation experiences has been associated with increases in participants' subjective wellbeing (Holland et al., 2018; Kuykendall, et al., 2015; Parsons et al., 2020). Many studies on SWB have consisted of various populations including full-time employees, retirees, and people with disabilities. In studies looking specifically at the college student population, King et al. (2020) found that participants' SWB was significantly higher when engaged in active leisure compared to lower levels related to more scholarly learning activities, however the study had a very small sample size ($n = 20$). Lepp (2018) surveyed over 500 college students to assess the relationship between the four domains of the leisure experience (challenge, boredom, awareness, and distress) and happiness and concluded that leisure experience for college students was related to happiness. Interestingly, Lepp (2018) found leisure distress and boredom was linked to decreased happiness for this population. Finally, Kim et al. (2015) found that leisure satisfaction had a positive effect on college students' psychological well-being by increasing self-esteem while decreasing loneliness and stress.

Leisure satisfaction is a key component of SWB (Diener et al., 1999; Lyubomirsky et al., 2005; Parson et al., 2020) and refers to the positive perceptions or feelings an individual gains as a result of engaging in leisure activities (Beard & Ragheb, 1980; Tian et al., 2020). Leisure satisfaction has been associated with both an increase in SWB (Wang & Wong, 2011) and participants' sustained engagements in leisure activities (Searle et al., 1993).

Aim

The purposes of this study were to test the use of the DRAMMA model in predicting SWB and leisure satisfaction, to explore the relationship between leisure satisfaction and SWB, and to determine the overall efficacy of the DRAMMA model in explaining SWB in a college-student population. Through testing a significant portion of the

DRAMMA model, we furthered the understanding of 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. The following research questions were investigated:

1. Do the psychological mechanisms of the DRAMMA model predict SWB?
2. Do the 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?

METHODS

Sampling Procedures

Following IRB approval, an electronic survey was sent to undergraduate students enrolled in a large, public Midwestern university during the 2016 spring semester. An informative email, detailing the study and including a link to the anonymous survey, was distributed prior to the collection period via the Office of Information Technology and Registrar's Office. Two follow up emails were sent at two and four weeks after the initial invitation in hopes of increasing our response rate. The web-based construction of the survey was developed using Qualtrics software by employing multiple-choice response and scale responses.

Measures

The measures for the study were divided into four sections: (1) Section A, demographic and leisure participation information (13 items); (2) Section B, psychological outcomes of leisure participation (42 items); (3) Section C, leisure satisfaction (24 items); and (4) Section D, subjective wellbeing (4 items). Pre-validated scales were used for Sections B through D: Recovery Experience Questionnaire (REQ; α = .791l; Sonnentag & Fritz, 2007); Basic Psychological Needs Scale (BPNS; α = .867; Ilardi, et al., 1993); Engagement in Meaningful Activities Survey (EMAS; α = .864; Goldberg, et al., 2002); Leisure Satisfaction Scale (LSS; α = .862; Beard & Ragheb, 1980); and Subjective Happiness Scale (SHS; α = .861; Lyubomirsky & Lepper, 1999).

Data Analysis Procedures

SPSS AMOS was used to analyze the relationship between the independent and dependent variables. Cronbach's alpha tested for internal consistency and reliability. Multiple regression analyses were used to test whether the five psychological mechanisms of the DRAMMA model predict SWB. Multiple regression analyses were used to test whether the five psychological mechanisms of the DRAMMA model were associated with SWB and leisure satisfaction. Further ANOVA was used to test differences in SWB among demographic groups (e.g., self-reported gender, year in school, favorite recreational activity). To determine if leisure satisfaction was associated with SWB, a bivariate linear regression was used with leisure satisfaction as the independent variable and SWB as the dependent variable. To determine how well the DRAMMA model explains SWB, a path analysis was used as the primary statistical tool. Missing values were not included in analyses.

RESULTS

Following data cleaning and removal of outliers, the final sample included 704 surveys. The sample included freshmen (27.8%), sophomores (22.7%), juniors (23.4%), and seniors (26.1%). Female respondents represented 64% of the sample. Participants ranged in age from 18 (12.1%) to > 22 (10.5%0) years, with 19 years (24.9%) comprising the largest age group.

R1: Psychological Mechanisms of the DRAMMA Model and SWB

The multiple regression model found that the five psychological mechanisms of the DRAMMA model significantly predicted SWB (F[5, 698] = 19.28, p <.001, R2 = .12, R2 Adjusted = .115), indicating that approximately 12% of the variance in SWB was explainable by autonomy, mastery, affiliation, meaning, and detachment-recovery. The analysis showed, 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 indicated that, on average, every one-unit increase of Mastery resulted 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 indicated that, on average, every one-unit increase of Affiliation resulted 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 indicated that, on average, every one-unit increase of Meaning resulted in a 0.30 unit change in SWB (Table 1).

Table 1

Results for Multiple Regression with the Five Psychological Mechanisms Predicting SWB

Variable	B	SE	β	t	p
(Intercept)	1.33	0.41	0.00	3.23	.001
Autonomy	0.01	0.06	0.00	0.09	.932
Mastery	0.13	0.07	0.10	2.00	.046
Affiliation	0.22	0.04	0.19	4.97	<.001
Meaning	0.30	0.09	0.15	3.22	.001
Detachment-Recovery	0.09	0.07	0.05	1.30	.193

Note. F(5,698) = 19.28, p < .001, R2 = 0.12

When controlling for demographic differences in SWB, we found no significant differences between gender groups (F = 2.348, p = .074), favorite recreational activity (F = 0.120, p = 0.994), year in school (F = 1.382, p = 0.241), or race/ethnicity (F = 2.001, p = 0.931).

R2: Psychological Mechanisms of the DRAMMA Model and Leisure Satisfaction

The multiple regression model found that the five psychological mechanisms of the DRAMMA model significantly predicted leisure satisfaction (F[5, 698] = 196.34, p < .001, R2 = .58, R2 Adjusted = .58), indicating that

approximately 58% of the variance in leisure satisfaction was explainable by autonomy, mastery, affiliation, meaning, and detachment-recovery. The analysis showed that after controlling for the other predictors in the model, autonomy (< .001), affiliation (< .001), and meaning (< .001) significantly predicted leisure satisfaction (Table 2).

Table 2

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

Variable	B	SE	β	t	p
(Intercept)	1.10	0.12	0.00	8.94	<.001
Autonomy	-0.09	0.02	-0.15	-5.11	<.001
Mastery	0.05	0.02	0.08	2.40	.017
Affiliation	0.17	0.01	0.34	12.64	<.001
Meaning	0.54	0.03	0.61	19.55	<.001
Detachment-Recovery	0.02	0.02	0.02	0.85	.395

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

R3: Leisure Satisfaction and SWB

The linear regression model found that leisure satisfaction statistically significantly predicted SWB ($F_{[1, 702]} = 76.05$, $p < .001$, $R^2 = .98$, R2 Adjusted = .96), indicating that approximately 10% of the variance in SWB was explainable by leisure satisfaction. The analysis showed that leisure satisfaction ($\beta = .313$, $p < .05$) did significantly predict SWB. This indicated that, on average, every one-unit increase of Leisure Satisfaction resulted in a 0.72 unit change in SWB (Table 3).

Table 3

Results for Linear Regression with Leisure Satisfaction Predicting SWB

Variable	B	SE	β	t	p
(Intercept)	2.00	0.33	0.00	6.07	<.001
Leisure Satisfaction	0.72	0.08	0.31	8.72	<.001

*Note.* $F_{(1,702)} = 76.05$, $p < .001$, $R^2 = 0.98$

R4: DRAMMA Model and SWB in a College-Student Population

To determine how well the DRAMMA model explains SWB in a college-student population, we replicated the path model tested by Twilley et al. (2022), which is based on the theoretical path model proposed by Newman et al. (2014). The theoretical path model shows the physiological mechanisms of the DRAMMA model as exogenous variables, leisure satisfaction as an endogenous variable to SWB. Figure 1 shows the standardized estimates for the Path Diagram of the DRAMMA model when accounting for leisure satisfaction, which is the basis for testing the overall model fit.

Insignificant paths were included in the model based on relevance in the theoretical model (Hancock et al., 2018). The CFI for the model was 0.995 and the RMSEA was 0.017, both indicating excellent fit (Hancock et al., 2018).

Figure 1
Path Model
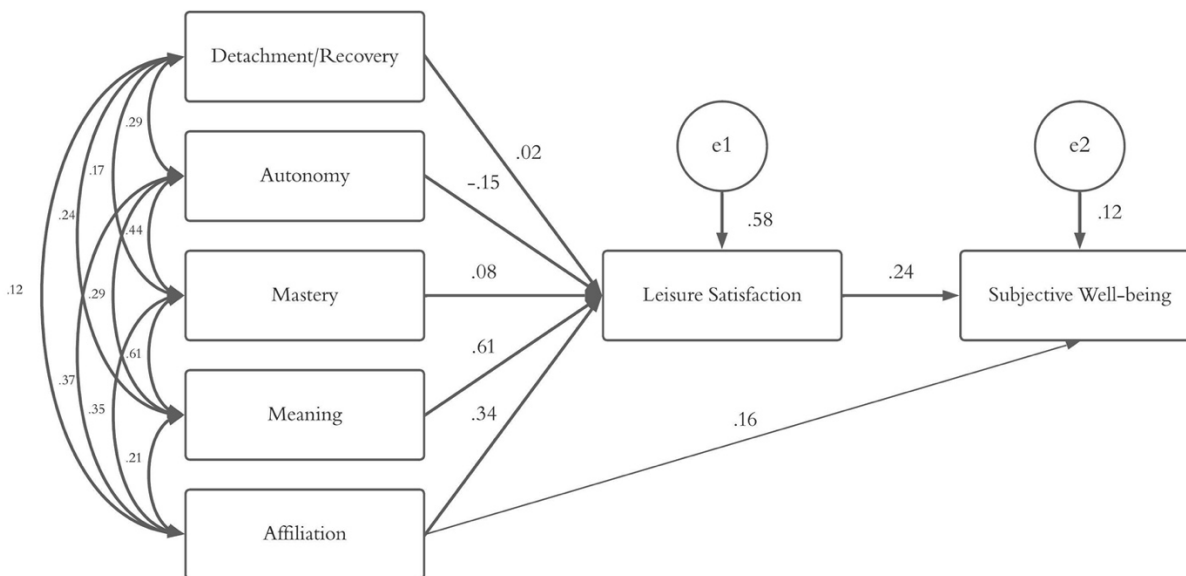
The path model had 28 observations and 23 parameters equaling five degrees of freedom, meaning the model was over-identified. Chi Squared equaled 27.607 at significance of $p < .001$, which is likely a result of a large sample size (Hooper et al., 2008). The SRMR for the theoretical model was .041 for this study. For the theoretical model in this study, the fit indices were all strong and exemplified excellent fit except for the RMSEA which was borderline acceptable under current cut-off points (Hooper et al., 2008). Based on the high RMSEA and theoretical support (Ryan & Deci, 2000, 2001; Ryan et al., 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. 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 was theoretical support, and we were in an exploratory stage, the model was run again adding the path from mastery to SWB. Once the direct path from mastery to SWB was added, 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.

With three degrees of freedom, chi squared equaled 3.67 at a 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 was strong theoretical support for adding the additional path of autonomy to the model. Once the direct path from autonomy to SWB was added 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 indicated an excellent fit.

CONCLUSIONS

The results of this research suggested that participants valued meaningful leisure experiences that offered opportunities for social interaction. When these two psychological mechanisms were combined in a single experience, participants reported increased levels of leisure satisfaction and SWB. Additionally, these two variables showed a weak correlation, which highlighted their individual and unique roles in predicting leisure satisfaction and SWB.

The results suggest social relationships developed and nurtured through leisure experience, while also being meaningful, enhance SWB. Affiliation being a strong influence on SWB is consistent with earlier findings (Lyubomirsky et al., 2005; Rodríguez et al., 2008), particularly with college student populations (Caunt et al., 2013; King et al., 2020; Tkach & Lyubomirsky, 2006). The strong relationship between meaning found through leisure participation and SWB in this study also lends support to previous research (Iwasaki, 2007; Wang & Wong, 2011). Developing meaning in life is integral to happiness (Baumeister & Wilson, 1996) and is often developed through leisure engagement.

The current results did not support earlier research that found a positive relationship between autonomy and subjective wellbeing (O'Donnell et al., 2013; Ryan & Deci, 2000, 2001; Ryan et al., 2008; Sheldon et al., 1996, 2005; Sheldon & Niemiec, 2006). Participants reported a higher level of autonomy in leisure than the other two basic physiological needs. It is important to acknowledge that these previous studies had adopted a different framework (Self-Determination Theory), which did not use a lens of leisure, and included different variables (social duties) than those examined here. Autonomy might have predicted SWB in other contexts; however, when viewed through leisure and coupled with the other psychological mechanisms of the DRAMMA model, it did not predict SWB in this study's sample.

In addition to autonomy, detachment-recovery did not significantly predict SWB. Detachment-recovery theory was developed in the context of needing to detach and recover from the psychological and physiological demands of work (Sonnentag & Bayer, 2005; Sonnentag & Fritz, 2007). When opportunities to detach and recover are reduced, increased stress levels combine with poor physiological function to reduce wellbeing. When individuals indicate having a lack of leisure opportunities because of their emphasis on work they experience decreased life satisfaction (Lounsbury & Hóopes, 1986). One reason the need for detachment-recovery might not predict SWB in this study may be that 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). Hence, students do not feel a strong need for detachment-recovery through their leisure experiences to be happy as it is already a central part of their lives.

For participants of this study to have high levels of leisure satisfaction they must develop a sense of meaning through their leisure experiences. Participants seemed to gain something important, valuable, and personally fulfilling through their leisure experiences, thus increasing leisure satisfaction. For college students, identity development is paramount during their college years (Evans et al., 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.

In the current study, leisure satisfaction accounted for 25% of individual and controllable happiness. In previous studies, satisfaction through leisure has accounted for up to 28% of the variance in life satisfaction (Rodríguez et al., 2008), 8.2% of the variance in SWB (Brajša-Žganec et al., 2011), and 14.8% 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's ability to predict quality of life for SWB. Further, of the six variables studied, they found that leisure satisfaction accounted for the greatest variance in quality of life.

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 personal 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, this study did not find it as important an attribute as meaning and affiliation. If students were using leisure as an outlet to detach and recover from the stress of school, then the moderate desire for mastery experiences would be logical, but this was 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).

Considering the frequency of psychological distress among college students (Akeman et al., 2019; Lattie et al., 2019), higher education and recreation professionals should consider intentional programming to create a health promoting environment and enhance happiness. Through intentional leisure programming, there is the potential to reduce the need or frequency of mental health therapy. With that in mind, practitioners should develop recreation and leisure programs that are meaningful and programs that offer opportunities for social interaction. Further, leisure professionals should advocate for teaching college students how to engage in constructive leisure activities (Hartman et al., 2020; Lepp, 2018). Robinson (2003) argued in favor of teaching students a "leisure skill set," much like teaching financial literacy, as society has not learned how to engage in leisure as much as work. Utilizing campus recreation expertise, staff could incorporate more workshops related to learning new leisure skills like pickleball, camping, climbing, or even cooking. Likewise, campus activity departments could provide instruction on creative arts like painting, photography, or music with no course credit requirement. Lastly, physical activity classes, for credit, could be another opportunity to teach students new leisure skills by offering a diverse portfolio of activity classes.

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

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<u>Author's Note</u>
We have no conflicts of interests to disclose.