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Buzzfeed to Behavior: In Search of Sustainable Spillover from Happiness-Based Information Interventions

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Information Interventions

A Thesis

Presented to the Department of Psychology

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In Fulfillment of

Departmental Honors

for Butler University's Department of Psychology

Leah Gerber

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Examining the Roles of Hedonic and Eudaimonic Happiness on Pro- Environmental Behavior: An Information Intervention

Humans go to great lengths to bolster happiness, whether it be for a fleeting moment or for a more abiding sense of psychological well-being. Current research suggests that one way to increase human happiness is through spending time in nature (Zelenski & Nisbet, 2014). It is important to note that human happiness is a multifaceted construct, with both affective and cognitive components (Zelenski & Nisbet, 2014). In this study we aimed to examine both the affective and cognitive components of happiness—in other words, hedonic happiness and eudaimonic happiness—in order to add to the burgeoning body of literature that is environmental psychology.

Humans and the Natural Environment

It was not until the recent development of the Nature Relatedness Scale (Nisbet, Zelenski, & Murphy, 2008) that happiness became linked with one's relationship to the natural world. While early theories such as the biophilia hypothesis (Wilson, 1984), established human's innate need to identify with the natural environment, the theories did not include the affective components of spending time in nature. Nature relatedness, used to assess individual levels of connectedness to the natural world, is comprised of three components: cognitive, behavioral, and experiential (Nisbet, Zelenski, & Murphy, 2008). Connectedness to nature fosters a greater appreciation for natural environments, and as a result pro-environmental behaviors increase. Previous research supports that nature relatedness is positively related with psychological well-

being such that nature relatedness can predict happiness (Zelenski & Nisbet, 2014).

Along with the affective benefits reaped from spending time in nature comes further psychological and attitudinal benefits. Data suggest that spending time in nature may reduce crime and aggression (Kuo & Sullivan, 2001). Both crime and large divides in socioeconomic status are issues that plague urban areas today. With 54% of the world's population living in urban settings, it is more important than ever to ensure that the human- nature connection is capitalized upon. Additionally, there is an increasing disconnect between humans and nature in the 21st century. Since the late 1980's, the percent of Americans taking part in outdoor activities such as fishing, hiking, and camping has steadily declined (Pergams & Zaradic, 2008). Overall, populations living in developed countries are spending a majority of their time indoors and are missing the psychological benefits reaped from natural environments (MacKerron & Mourato, 2013).

Although there is a plethora of literature surrounding the positive impacts of nature on human well-being, scientists still struggle to motivate individuals to spend time outdoors in order to increase nature relatedness. In this study, I aimed to use happiness as a motivator for behavior change; while increasing individual levels of happiness is a laudable goal, behavior change was the main objective. By prompting individuals to spend more time in nature, in order to reap the corresponding affective benefits, we sought to increase levels of nature connectedness in participants and in turn increase pro-environmental behaviors.

More specifically, I sought to elicit behavior change through the use of an information intervention, a psychological method that focuses on altering individual

behaviors or mood states. There were three different types of information interventions: a hedonic intervention, eudaimonic intervention, and a humanistic intervention, such that each participant was exposed to one type of intervention. Each intervention was presented in the format of a BuzzFeed article, BuzzFeed being an internet news media company with over one million views per day. Each BuzzFeed article was identical in format and featured identical pictures; however, the title of each article and suggestions made to increase the participant's happiness varied across the three conditions.

Types of Happiness

There are two principle types of human happiness—hedonic happiness and eudaimonic happiness. The hedonistic approach to happiness is most commonly associated with the routine definition of happiness, the presence of positive affect. The eudaimonic approach focuses on overall well-being, living life in a deeply satisfying way (Deci & Ryan, 2006). It is important to take note of the two separate sorts of happiness in that hedonistic happiness and eudaimonic happiness may be impacted by connectedness to nature in different ways (Nisbet et al., 2011).

The third motive that was employed was referred to as the humanistic motive—taking into account future generations in one's everyday environmental decisions. Many environmental campaigns, such as the Honda campaign entitled “Blue Skies for Our Children,” have adopted humanistic themes in order to elicit behavior change in various audiences. Humanistic motivation can be characterized by statements such as, “recycle in order to conserve resources for future generations.” or “save energy to protect your children from climate change.” Unfortunately, we as humans have an

inborn tendency to choose short-term options to receive instant gratification, rather than choosing long-term options with delayed gratification (Nisbet & Zelenski, 2011). Due to the far sightedness of humanistic motivations, individuals are often left feeling indifferent, rather than impassioned, after being exposed to humanistic-based environmental campaigns.

In reviewing the literature, it is apparent that there are a multitude of barriers when it comes to evoking environmental behavior change. For example, aside from faulty humanistic motivations, one must remain cognizant of the individual presenting the information to audiences. We hypothesized that environmentally sustainable behaviors and happiness will increase after the happiness information intervention. More specifically, we hypothesized due to individual's preference for short-term reception of gratification, participants who take part in the hedonic happiness information intervention would report more behavior change than those who take part in the eudaimonic information intervention or the humanistic intervention.

Method

Participants

Participants were 96 undergraduate students from Butler University. Nearly 29% of the participants were male, and 70% were female. The majority of participants identified themselves as Caucasian (90.7%), whereas 9.3% of participants identified themselves as a minority. Participants ranged in age from 18 to 22 years old ($M= 20.58$, $SD= 1.04$). Each participant was randomly assigned to one of three conditions: hedonic ($n=37$), eudaimonic ($n=34$), or humanistic ($n=25$). Of the six academic colleges that comprise Butler University, the majority of the participants had a major in the College

of Liberal Arts and Sciences (44.3%). There was also a strong representation of participants from the College of Pharmacy and Health Sciences (18.6%), the College of Communication (17.4%), and the College of Business (11.3%). Participants were recruited through word of mouth and through the use of Butler University's Sona System. Participants who signed up for the study through the Sona System were compensated with extra credit towards a psychology course of their choosing.

Procedure

In-Lab Study. Before each session, researchers were notified as to how many participants would be attending. This allowed for the researcher to arrive early and to randomly select one of three conditions for each participant, to record the condition, and to set up the corresponding information intervention. All participants met in the lab, with a maximum of three participants taking the study at one time, in order to partake in a study entitled "Motivators of Pro Environmental Behavior." After completing the informed consent, participants were asked to complete the eight baseline measures mentioned below, appendices A through H, on a computer. It is important to note that each participant was provided with a "reference sheet" that included instructions for each measure. The reference sheet was provided to ensure that participants understood the instructions for each measure; each set of instructions was quite similar but contained slight variations that we believed may lead to confusion. Participants then completed the eight measures and demographic information on their respective computer.

Upon completing the series of measures, participants were presented with one of three BuzzFeed articles that corresponded with the condition randomly selected

earlier. The researcher then explained the article to the participant as follows:

“Thank you for your participation so far, to close please look at the BuzzFeed post. This information may be used in a future study and we would really appreciate your feedback on the content of the post. If you have any recommendations for improvement, please jot them down on the scratch paper provided. ”

Each participant was given one blank sheet of paper in order to record any feedback regarding the BuzzFeed article. Each participant was asked to complete the online follow-up survey that would be sent via Butler University email two weeks following the lab study.

Out of Lab Study: The survey sent to participants two weeks following the in-lab study contained the Positive and Negative Affect Schedule (PANAS; Waston, Clark, & Tellegen, 1988), the Nature Relatedness Scale (Nisbet et al., 2009), and pieces from the Indignation due to the Environmental Damage scale, the Intention to Act scale, and the Pro-Ecological Behavior scale (Corral et al., 2011), all surveys used to assess baseline behaviors and attitudes. The participants were also asked to recall at least three pieces from the BuzzFeed article that was presented to them two weeks prior—to assess if the information remained intact two weeks after the intervention. Participants were then debriefed on the information intervention and purpose of the study.

Measures

Materialistic Values Scale. We first used three items from the Materialistic Values Scale, $\alpha = .76$ (Richins & Dawson, 1992) in order to gauge how much

importance participants placed on material possessions and social status. Responses ranged from 1 to 7, 1= “Strongly disagree and 7= “Strongly agree,” such that individuals who rated themselves higher on the scale tend to exhibit more materialistic values and seek to gain higher social standing through material possessions.

Ryff's Psychological Well-Being Scale. In order to gauge baseline levels of eudaimonic happiness, Ryff's Psychological Well-Being Scale (medium form) was employed (Ryff, 1989). Well-being is a multifaceted and dynamic concept that Ryff was able to theoretically capture by focusing four key components. The first of Ryff's components is autonomy, $\alpha = .76$, is characterized by the ability to resist social pressures (Ryff, 1989). It is important to note that self-regulation falls under the component of autonomy. Self-regulation is a fundamental part of pro-environmental behavior, for example regulating water or product consumption. The second component, environmental mastery, $\alpha = .78$, is the extent to which students feel in control of and able to act in the environment (Ryff, 1989). Personal growth, $\alpha = .77$, the third component, is defined as the extent to which students have a sense of continued development and self-improvement. The final component, positive relations with others, $\alpha = .77$, is simply the presence of satisfying and trusting relationships with others (Ryff, 1989). Responses ranged from 1 to 6, 1 = “Strongly disagree” and 6 = “Strongly agree.” While the majority of the items were scored in a way in which a higher score indicated increased well-being, 28 items were reverse scored such that a higher score indicated decreased well-being.

Positive and Negative Affect Schedule. In order to assess both positive and negative affect, the Positive and Negative Affect Schedule (PANAS; Waston, Clark, &

Tellegen, 1988) was employed. This scale is comprised of 20 words that describe different feelings and emotions, such as “Interested” and “Guilty.” Participants were then asked to rate the extent to which they experienced each emotion in that moment, or the extent to which they had experienced each emotion in the past week, using a 5 item scale, ranging from 1 = “Very slightly or not at all” to 5 = “Extremely.” Each feeling or emotion was either positively valenced, $\alpha = .83$, or negatively valenced, $\alpha = .84$.

Nature Relatedness Scale. The Nature Relatedness Scale (Nisbet et al., 2008), $\alpha = .87$, was employed to assess participants’ individual levels of connectedness with the natural world (Nisbet et al., 2009). The Nature Relatedness Scale was comprised of three parts: self, perspective, and experience. The first component, self, $\alpha = .76$, represents one’s intrinsic connection to nature, including items such as, “My relationship to nature is an important part of who I am,” (Nisbet et al., 2008). The second component, perspective, $\alpha = .67$, represents one’s external view of the natural environment, in particular a concern for non-human species. Perspective items include statements such as, “I think a lot about the suffering of animals,” (Nisbet et al., 2008). The third component, experience, $\alpha = .78$, represents a sense of comfort with the natural world, for example, “I enjoy being outdoors, even in unpleasant weather,” (Nisbet et al., 2008). Participants responded with a 5-item scale, 1 = “Disagree strongly” and 5 = “Agree strongly.” While the majority of the items were scored in a way in which a higher score indicated increased nature-relatedness, eight items were reverse scored such that a higher score indicated decreased nature relatedness.

Indignation due to Environmental Damage. This measure was one of three

measures employed to gauge environmental attitudes and behaviors. The Indignation due to Environmental Damage Scale (Corral et al., 2011), $\alpha = .75$, assessed environmental behaviors by asking participants to choose the way in which they would respond to seven various scenarios. Each scenario involved damage to the natural environment, such as “When someone cuts down a tree” and “When someone throws their cigarette butts on the ground,” (Corral et al., 2011). Responses ranged from 1 to 5, 1= “I feel indifferent” and 5= “I would feel so bad that I’d try to prevent someone from doing it by all means.”

Intention to Act. This second dependent measure focused on environmental behaviors on a daily basis—the Intention to Act Scale (Corral et al., 2011), $\alpha = .82$, was employed to measure how often participants engaged in behaviors using a scale ranging from 1 to 5, 1= “Never” and 5= “Always.” Participants were asked to indicate how often they engaged in behaviors such as conserving water, buying environmentally friendly products, and walking or biking instead of using a car.

Pro-Ecological Behavior. The third dependent measure sought to measure behavior over a two- week time span, directing participants to “Indicate how often you engaged in the following behaviors in the past two weeks,” (Corral et al., 2011). The Pro-Ecological Behavior Scale, $\alpha = .77$, made use of a scale that ranged from 1 to 5, 1= “Never” and 5= “Always,” It is important to note that we removed two items from the original measure: “Buys convenience foods” and “Uses a clothes dryer.” The measure was developed by Dr. Corral Verdugo, from University Sonora in Sonora, Mexico—we altered the measure to better align with local cultural norms. Finally, participants were asked to complete demographic information including gender, age, ethnicity, and

college (i.e. College of Liberal Arts and Sciences).

Manipulation

There were three BuzzFeed articles: hedonic, eudaimonic, and humanistic, such that each participant was randomly assigned to view one of the three articles. Photos were the same across the three articles; each photo was carefully selected and reviewed by multiple lab members. The format of each article was also identical—the only differences appeared in the title of each article and each “tip” (N=10) across the three conditions. The “tips” included were sourced from empirically-based articles and were integrated to create ten examples of how nature can increase happiness. Each measure and each information intervention are included in Appendix I.

Results

Of the 96 participants that completed the in-lab portion of the study, 88% of the participants completed the out-of-lab portion—the online, follow-up survey sent to them via Butler University email. Contrary to our hypothesis, the information intervention manipulation had no significant effect on any of the three pro-ecological measures. A repeated measure ANOVA that accounted for the within-subjects component (Time 1 and Time 2 behavior), as well as the between-subjects component (the information intervention), revealed that none of the three information interventions had a significant effect on any of the three pro-ecological measures—indignation $F(2, 83)=.21$, ns., intent $F(2, 83)=.33$, ns., ns. pro-ecological scale $F(2, 83)=.55$, ns. It is important to note that even when controlling for positive and negative affect, there was still no significant change in behavior. In addition, there was no significant effect on positive affect $F(2, 83)=.48$,

ns., or negative affect $F(2, 83)=.51$, ns.

Participants in the hedonic condition had a slight increase in means scores on the Indignation due to Environmental Damage Scale from Time 1 ($M=3.42$) to Time 2 ($M=3.44$). This increase was not present in the eudaimonic condition, Time 1 ($M=3.32$) to Time 2 ($M=3.28$), nor in the humanistic condition Time 1 ($M=3.53$) to Time 2 ($M=3.44$).

There were various significant correlations amongst the Nature Relatedness Scale and the outcome measures displayed in Table 1: the Indignation Due to Environmental Damage Scale, the Intention to Act Scale, and Pro-Ecological Behavior Scale. The positive nature of the correlation suggests that participants who scored higher on the Nature Relatedness Scale scored higher on the outcome measures. This positive correlation draws attention to the broad scope that is nature relatedness, and the way in which nature relatedness impacts daily environmental behaviors. Additionally, there was a positive correlation relating nature relatedness to growth, one of the sub-scales measured by Ryff's Scale of Psychological Well-Being. Ryff (1989) stated that individuals who receive high scores on the growth subscale have the ability to see improvement in their self and behavior over time. Individuals who are able to recognize positive changes within themselves may better understand the role that the natural environment plays in improving the self.

Discussion

In conducting this study we aimed to broaden the depth of understanding surrounding motivators of pro-environmental behaviors. In integrating environmental psychology with the psychology of happiness, we sought to discover a novel and

multifaceted way to motivate individuals to spend more time in the natural environment. The purpose of our study was to employ various types of happiness as motivators of pro-environmental behavior. Happiness was employed as a motivator due to the global nature of the pursuit of happiness—the pursuit of happiness is a goal shared by most of the Western world and is increasingly permeating other cultures (Lyubomirsky et al., 2011).

Although our results did not support our hypothesis that hedonic happiness would act as a motivator of pro-environmental behavior, this study acted as an important precursor to future research in the environmental realm of psychology. Our results show that covert information interventions are not an adequate means to elicit changes in behavior, more specifically changes in pro-environmental behaviors. The components of a more powerful information intervention will be discussed more in depth in the subsequent section, which focuses on limitations of the present study. In a time characterized by impending climate change and destruction to the natural environment it is crucial to identify ways in which to motivate individuals to go out into nature and to explore all of the benefits that nature has to offer. In doing so, individuals may foster greater connection to nature and may feel inclined to mitigate damage to the natural environment (Nisbet et al., 2008).

Although the need for behavior change in regard to environmental protection is apparent, one must be careful in the way that they approach attempting to elicit changes in environmental behavior. Oftentimes, negative stereotypes precede environmentalists—individuals who often take it upon themselves to bring about change in environmental domains (Bashir et al., 2013). Research shows that activists,

advocates for social change, are often viewed unfavorably by the general public because they are perceived as eccentric and atypical. In order to elicit any change in behavior, environmentalists must be wary of the way in which individuals perceive environmentalists and the way in which their attitudes are consequently altered. In this study, all information presented was done so in a professional lab setting—to eliminate any pre-existing stereotypes.

Limitations and Implications for Future Research

Although the results of the present study provide a better understanding of motivators of pro-environmental behaviors, the study did include an array of limitations. One limitation to the study was the season during which the study was enacted. The study was executed from December to early February, a time in which many individuals abstain from outdoor activities due to severe cold. The information intervention provided participants with a range of activities to engage in outdoors in order to increase happiness; however, the severe weather conditions may have prevented individuals from engaging in these activities. When examining the qualitative data, for example, many participants mentioned that the cold would most likely impede them from applying what they had learned from the intervention.

The use of a covert information intervention also served as a limitation. A single information intervention is often not powerful enough to elicit any significant change in behavior (Wantland et al., 2004). In order for a web-based information intervention to elicit a change in behavior, the intervention must be relevant and tailored to each individual participant (Wantland et al., 2004). Seeing as how all of the participants were exposed to identical web-based information interventions, dependent

upon which condition they were assigned to, the information was not tailored to best suit each participant. In addition, past research has demonstrated that information interventions that incorporate social support often lead to increased positive behavioral changes (Wantland et al., 2004). Participants first experienced the information intervention individually and upon debriefing were asked to refrain from any further discussion of the material presented to them during the study, eliminating any means of social support and therefore decreasing the likelihood of eliciting positive behavioral changes.

While this study presented participants with a way to increase happiness, the participants may not have had the will to enact a change in their behavior. Research demonstrates that in order to be happier, individuals must have a will and a way—happiness interventions are most successful when participants know about and commit to the intervention (Lyubomirsky et al., 2011). As a result of the information intervention being presented covertly, participants did not know about the intervention. If participants had known about the information intervention, participants may have been more willing to commit to pursuing happiness through interactions with the natural world. As mentioned previously, in this study we were not able to guarantee that participants were intrinsically motivated to increase their own happiness. Individuals are not uniformly predisposed to seek happiness. Individual differences, such as personality traits, can impact individual motivation to improve subjective well-being, or eudaimonic happiness (Diener et al., 2003). There was not a measure included in the study to control personality traits that may have impacted behavioral outcomes.

Future research could seek to employ a more powerful happiness information intervention in regard to evoking pro-environmental behaviors by staging the information intervention in a season with mild weather and by also informing participants as to the presence and purpose of the information intervention. By informing the participants, researchers may increase the likelihood of positive behavioral changes. Additionally, future studies could better account for the impact of personality traits on motivations to achieve happiness by including a measure such as the Revised NEO Personality Inventory (Costa & McCrae, 1995).

Lastly, future research must find a way in which to present participants with both a will and a way in which to increase happiness. In this study we were unable to ensure that all participants wished to increase their own happiness, despite the global nature of the pursuit of happiness. Past research has demonstrated a variety of activities enacted within lab settings that assist in strengthening the power of happiness-related information interventions. One such activity, demonstrated in a study focused on improving subjective well-being (Lyubomirsky et al., 2011), challenged participants engage in the effortful processing of envisioning their best future self. The study found that participants who engaged in this practice experienced increases in happiness and eudaimonia (Lyubomirsky et al., 2011). This method may be applicable to further research, if for example, researchers challenged participants to engage in the effortful processing of envisioning their best future self, while emphasizing the ways in which time spent in the natural environment could assist them in achieving their “best self.”

Conclusion

Our study emphasizes happiness as a motivator of interest—used to elicit

positive environmental behaviors. While our results were null, the present study was preemptive and sought to evaluate the interplay between various facets of human happiness and behavioral measures. Based on our results, there is much allowance for future research examining happiness as a motivator of pro-environmental behavior. Identifying happiness as a motivator of pro-environmental behavior could drastically alter the way in which humans interact with the environment. Individual connectedness to nature strongly predicts sustainable attitudes and behaviors (Zelenski & Nisbet, 2014). In promoting connectedness to nature as an indicator of happiness, more individuals may be motivated to adopt sustainable attitudes and behaviors.

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Table 1

Descriptive Statistics and Correlations for Key Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Autonomy	4.16	.65									
2. Growth	4.90	.58	.22*								
3. Mastery	4.26	.68	.38**	.30**							
4. Relations	4.81	.66	.19	.37**	.36**						
5. PA	3.46	.64	.30**	.24*	.63**	.39**					
6. NA	2.20	.73	-.35**	-.16	-.54**	-.33**	-.33**				
7. Intention	2.86	.58	.17	.23*	.26*	.07	.18	-.14			
8. Indignation	3.43	.68	.18	.22*	.16	.05	.04	-.08	.58**		
9. PEB	2.65	.57	.09	.12	.03	.07	.02	.09	.62**	.50**	
10. NR	3.39	.65	.14	.29**	.04	.00	-.03	-.03	.56**	.47**	.43**

Note. * $p < .05$ ** $p < .01$. Correlations above the diagonal represent Time 2 data.

Appendix A: Demographic

Please indicate your status on each of the following questions:

Age: _____

Gender: Male Female

Race: Asian/Pacific Islander

Black or African American

Hispanic or Latino

Native American or American Indian

White

Other: _____

College of Primary Major:

College of Business

College of Communication

College of Education

College of Liberal Arts and Sciences

College of Pharmacy and Health Sciences

Jordan College of the Arts

Appendix B: Material Values Scale- Short Form

(1= strongly disagree 7= strongly agree)

1. I admire people who own expensive homes, cars, and clothes.
2. I like a lot of luxury in my life.
3. I'd be happier if I could afford to buy more things.

Appendix C: Ryff Scales of Psychological Well-Being

The following set of statements deals with how you might feel about yourself and your life. Please remember that there are neither right nor wrong answers. Circle the number that best describes the degree to which you agree or disagree with each statement.

(1=Strongly Disagree, 2=Disagree, 3=Disagree Slightly, 4=Agree Slightly, 5=Agree, 6=Strongly Agree)

- _____ 1. Most people see me as loving and affectionate.
- _____ 2. I am not afraid to voice my opinion, even when they are in opposition to the opinions of most people.
- _____ 3. In general, I feel I am in charge of the situation in which I live.
- _____ 4. I am not interested in activities that will expand my horizons.
- _____ 5. I live life one day at a time and don't really think about the future.
- _____ 6. When I look at the story of my life, I am pleased with how things have turned out.
- _____ 7. Maintaining close relationships has been difficult and frustrating for me.
- _____ 8. My decisions are not usually influenced by what everyone else is doing.
- _____ 9. The demands of everyday life often get me down.
- _____ 10. I don't want to try new ways of doing things—my life is fine the way it is.
- _____ 11. I tend to focus on the present, because the future always brings me problems.
- _____ 12. In general, I feel confident and positive about myself.
- _____ 13. I often feel lonely because I have few close friends with whom to share my concerns.
- _____ 14. I tend to worry about what other people think of me.
- _____ 15. I do not fit very well with the people and the community around me.
- _____ 16. I think it is important to have new experiences that challenge how you think about yourself and the world.
- _____ 17. My daily activities often seem trivial and unimportant to me.

- _____ 18. I feel like many of the people I know have gotten more out of life than I have.
- _____ 19. I enjoy personal and mutual conversations with family members or friends.
- _____ 20. Being happy with myself is more important to me than having others approve of me.
- _____ 21. I am quite good at managing the many responsibilities of my daily life.
- _____ 22. When I think about it, I haven't really improved much as a person over the years.
- _____ 23. I don't have a good sense of what it is I'm trying to accomplish in my life.
- _____ 24. I like most aspects of my personality.
- _____ 25. I don't have many people who want to listen when I need to talk.
- _____ 26. I tend to be influenced by people with strong opinions.
- _____ 27. I often feel overwhelmed by my responsibilities.
- _____ 28. I have a sense that I have developed a lot as a person over time.
- _____ 29. I used to set goals for myself, but that now seems a waste of time.
- _____ 30. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.
- _____ 31. It seems to me that most other people have more friends than I do.
- _____ 32. I have confidence in my opinions, even if they are contrary to the general consensus.
- _____ 33. I generally do a good job of taking care of my personal finances and affairs.
- _____ 34. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.
- _____ 35. I enjoy making plans for the future and working to make them a reality.
- _____ 36. In many ways, I feel disappointed about my achievements in my life.
- _____ 37. People would describe me as a giving person, willing to share my time with others.

- _____ 38. It's difficult for me to voice my own opinions on controversial matters.
- _____ 39. I am good at juggling my time so that I can fit everything in that needs to be done.
- _____ 40. For me, life has been a continuous process of learning, changing, and growth.
- _____ 41. I am an active person in carrying out the plans I set for myself.
- _____ 42. My attitude about myself is probably not as positive as most people feel about themselves.
- _____ 43. I have not experienced many warm and trusting relationships with others.
- _____ 44. I often change my mind about decisions if my friends or family disagree.
- _____ 45. I have difficulty arranging my life in a way that is satisfying to me.
- _____ 46. I gave up trying to make big improvements or change in my life a long time ago.
- _____ 47. Some people wander aimlessly through life, but I am not one of them.
- _____ 48. The past has its ups and downs, but in general, I wouldn't want to change it.
- _____ 49. I know that I can trust my friends, and they know they can trust me.
- _____ 50. I judge myself by what I think is important, not by the values of what others think is important.
- _____ 51. I have been able to build a home and a lifestyle for myself that is much to my liking.
- _____ 52. There is truth to the saying that you can't teach an old dog new tricks.
- _____ 53. I sometimes feel as if I've done all there is to do in life.
- _____ 54. When I compare myself to friends and acquaintances, it makes me feel good about who I am.

Appendix D: PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word.

Indicate to what extent you feel this way right now, that is, at the present moment *OR* indicate the extent you have felt this way over the past week (now vs. week?)

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

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

Appendix E: Nature Relatedness Scale

Instructions: For each of the following, please rate the extent to which you agree with each statement, using the scale from 1 to 5 as shown below. Please respond as you really feel, rather than how you think “most people” feel.

1 Disagree strongly	2 Disagree a little	3 Neither Agree or disagree	4 Agree a little	5 Agree strongly
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- | | |
|--|---|
| <p>1. I enjoy being outdoors, even in unpleasant weather. _____</p> <p>2. Some species are just meant to die out or become extinct. _____</p> <p>3. Humans have the right to use natural resources any way we want. _____</p> <p>4. My ideal vacation spot would be a remote, wilderness area. _____</p> <p>5. I always think about how my actions affect the environment. _____</p> <p>6. I enjoy digging in the earth and getting dirt on my hands. _____</p> <p>7. My connection to nature and the environment is a part of my spirituality. _____</p> <p>8. I am very aware of environmental issues. _____</p> <p>9. I take notice of wildlife wherever I am. _____</p> <p>10. I don't often go out in nature. _____</p> <p>11. Nothing I do will change problems in other places on the planet. _____</p> | <p>12. I am not separate from nature, but a part of nature. _____</p> <p>13. The thought of being deep in the woods, away from civilization, is frightening. _____</p> <p>14. My feelings about nature do not affect how I live my life. _____</p> <p>15. Animals, birds and plants should have fewer rights than humans. _____</p> <p>16. Even in the middle of the city, I notice nature around me. _____</p> <p>17. My relationship to nature is an important part of who I am. _____</p> <p>18. Conservation is unnecessary because nature is strong enough to recover from any human impact. _____</p> <p>19. The state of non-human species is an indicator of the future for humans. _____</p> <p>20. I think a lot about the suffering of animals. _____</p> <p>21. I feel very connected to all living things and the earth. _____</p> |
|--|---|

Appendix F: Indignation Due to Environmental Damage Scale

You will be presented with a scenario, please choose the way in which you would most likely react.

(0-I feel indifferent, 1-I feel slightly bad, 2-I feel sadness, 3-I feel so bad that it angers me, 4-I feel so bad that I would try to prevent that action, telling the person not to do so, 5-I would feel so bad that I'd try to prevent someone from doing it by all means)

- _____ When someone cuts down a tree
- _____ When someone throws their cigarette butts on the floor
- _____ When someone throws their trash on public roads.
- _____ When someone harms an animal, person or plant.
- _____ When observing factories that throw waste into rivers/sewage
- _____ When seeing streets full of traffic and filled with smoke
- _____ When observing that neighbors waste water

Appendix G: Intention to Act Scale

For each statement please indicate how often you engage in the following behaviors.

(1-Never, 2-Rarely, 3-Sometimes, 4-Very often, 5-Always)

- _____ To participate in pro-ecological manifestations
- _____ To donate money for environmental campaigns
- _____ To volunteer in environmental conservation
- _____ To collaborate in environmental protection
- _____ To sign against an act that harms the environment
- _____ To buy environmentally friendly products
- _____ To use energy efficient systems
- _____ To walk or use bike instead of car
- _____ To deposit paper in its container
- _____ To deposit glass in its container
- _____ To conserve water

Appendix H: Pro-Ecological Scale

For each statement please indicate how often you engage in the following behaviors.

(1-Never, 2-Rarely, 3-Sometimes, 4-Very often, 5-Always)

- _____ Waits until having a full load for laundry
- _____ Drive at speeds below 100 on freeways
- _____ Collects and recycles used paper
- _____ Brings empty bottles to a recycling bin
- _____ Has pointed out un-ecological behavior
- _____ Buys products in refillable packages
- _____ Buys seasonal product
- _____ Reads about environmental issues
- _____ Talks to friends about environmental problems
- _____ Kills insects with a chemical insecticide
- _____ Turn down air conditioning when leaving place
- _____ Looks for ways to reuse things
- _____ Encourages friends and family to recycle
- _____ Conserves gasoline by walking or bicycling

Appendix I: Manipulation

i. Hedonic Intervention

10 Ways that Nature Boosts Your Mood

Scientists have recently identified a link between spending time in nature and happiness. Read up to figure out how you can boost your happiness by utilizing greenspace on your campus!

1. Individuals who exercise outside experience more joy and pleasure post-work out, than do individuals who exercise in indoor settings.
2. Spending just 20 minutes outside on a nice day has been shown to significantly boost one's mood.
3. Walking around your college campus, rather than driving, often replaces feelings of stress with positive feelings such as contentment or satisfaction.
4. Working in nature, such as picking fruit at the campus farm or participating in a tree planting with Butler's Volunteer Center, often triggers feelings of joy or even bliss.
5. A morning walk in the sun helps to allow for peace of mind before going to sleep at night.
6. Looking at natural landscapes can make you feel more optimistic throughout your day.
7. Surround and involve yourself with nature by visiting a local farm or orchard, it will leave you feeling refreshed and rejuvenated.
8. Having issues with a friend? Research suggests that green environments make individuals more likely to experience feelings of optimism. Discuss the conflict outdoors in order to leave you both feeling content and harmonious.
9. By conducting group meetings in out door settings (if weather permits), group members will experience increased positivity leading to a pleasant meeting session.
10. Just a few minutes spent outside can make you more cheerful, causing your professors, co-workers, and loved ones to enjoy being in your presence.

ii. Eudaimonic Intervention

10 Ways that Nature Helps You to Thrive

Scientists have recently identified a link between spending time in nature and eudaimonia (a Greek word that directly translates into *human flourishing*). Read up to figure out how you can boost your eudaimonic happiness by utilizing greenspace on your campus!

1. Individuals who exercise outside experience a greater increase in self-esteem than do individuals who exercise in indoor settings.
2. Spending just 20 minutes outside on a nice day has been shown to spur personal growth—individuals often become better able to identify personal strengths or weaknesses.
3. Walking around your college campus, rather than driving, often replaces feelings of stress with feelings of a sense of direction and purpose. (purpose in life)
4. Working in nature, such as picking produce at the campus farm or participating in a tree planting with Butler's Volunteer Center, often triggers feelings of belonging and a deeper connection with the world. (positive relations with others)
5. A morning walk in the sun often causes individuals to feel a greater sense of control over the external events that occur later in the day.
6. Looking at natural landscapes can make you feel more optimistic about disappointments that have occurred in the past. (self- acceptance)
7. Surround and involve yourself with nature by visiting an orchard this semester, it will result in a greater appreciation for new experiences in both the present and in the future. (personal growth)
8. Having issues with a friend? Research suggests that green environments make individuals more likely to be generous and caring. Discuss the conflict outdoors in order to better understand your friendships and relationship with others. (positive relations with others)
9. By conducting group meetings in outdoor settings (if weather permits), group members will experience increased autonomy, or sense of self. This increased sense of self will cause group members speak honestly and openly. (autonomy)
10. Even a few minutes spent outside can make you more caring and empathetic, improving your relationships with professors, co-workers, and loved ones. (positive relations with others)

iii. Humanistic Intervention

10 Reasons to Start Changing the Way You Treat the Earth

It is no secret that concerns surrounding the condition of the Earth are mounting—experts from all disciplines have expressed apprehension in regard to the future of the Earth and consequently to the well-being of our descendants. Read up on how you can do your part in protecting the Earth to protect our future generations on campus and throughout your community!

1. Individuals who exercise outside, without the use of treadmills and elliptical machines, help to conserve energy for future generations.
2. Spending just 20 minutes outside on a nice day can bring you closer to nature, making you more mindful of the way your actions impact the natural environment.
3. Walking around your college campus, rather than driving, will help to reduce carbon emissions that contribute to the greenhouse effect.
4. Working in nature, such as picking produce at the campus farm or participating in a tree planting with Butler's Volunteer Center, will help to keep soil and land healthy for future use.
5. Replace a long shower in your morning routine with a short shower, not only are you conserving water but you can also make time for a morning walk in the sun.
6. Looking at natural landscapes allows you to spend less time in front of the TV or computer, conserving energy for others in the future.
7. Surround and involve yourself with nature by visiting a local farm or orchard, supporting locally grown food reduces carbon emissions from transporting food.
8. Having issues with a friend? By discussing these issues in green environments
9. By conducting meetings in outdoor settings (if weather permits), reduce energy usage from overhead lights—conserving energy for future generations.
10. Just a few minutes spent outside can increase your appreciation for nature, and help to preserve it for future generations to appreciate as well!







