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Rediscovering Nature: Tree Exercises and Psychology

Kendra Woodglass

Dominican University of California

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Rediscovering Nature

Tree Exercises and Psychology

Kendra Woodglass

Dominican University of California

April 2014

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One's place in the natural world is an ancient topic of discussion. A search for connection to nature and understanding the role we humans play in the greater universe, has been prevalent in cultural, religious and spiritual beliefs for all of human existence. In the modern era, people in wealthy, developed nations are increasingly losing touch with the natural world. This lack of connection robs people of the comfort and disease preventing benefits given to us by nature. Having a connection to nature provides a specific lens through which to see the world, which can help to improve one's overall sense of well being as well as inner peace. This lens consists of three main focuses. The first, nature encourages people to appreciate beauty and find a sense of spirituality in the world. The second, nature assists people in understanding the cyclical process of life and teaches them to not fear death, but to accept it as part of the process. The third, connection to nature helps people to develop a sense of belonging and oneness with the universe. Through these different aspects of appreciation, we gain the ability to expand our thoughts and create a more positive world in which to live. In the words of Buddha, "We are what we think. All that we are arises with our thoughts. With our thoughts we make the world" (Easwaran, 1987).

Beauty:

*The wisdom of nature
speaks to us heart to heart,
and nature's first language
is beauty*

-Tim McNulty (Heinemann, 2005)

What is it in the world that drives human motivation? There are certain things

necessary for survival, other things people are simply attracted to, but they all make up the reasons for our actions. Maslow's hierarchy of needs provides an outline of how these needs are addressed. It is most commonly seen in the form of a pyramid. The base section consists of needs that pertain to physiological, safety, belongingness, love and esteem. The middle section addresses a need to know and understand as well as aesthetic needs. The top of the pyramid holds self-actualization and transcendence (Huitt, 2007). Within the broad realm of the natural world all of these needs can be fulfilled. Through exploration of our environment and mindfulness in our practices, we can find answers to these lifelong callings in the here and now.

Nature has a way of communicating the concept of beauty to all of the senses. People tend to overlook the beauties presented to them on a daily basis. Sight, smell, sound, touch, taste, and imagination are all stimulated by the natural environment. Taking a walk, or going on a hike, can expose one to countless opportunities for insight and excitement; we must simply open our mind's eyes and willingly take in the beauty. Silky spider webs flowing with the wind provide glimpses of the rainbow that encompasses the entire visual universe. The wind itself tells tales of everything it has come across. According to John Muir, "Winds are advertisements of all they touch, however much or little we are able to read them; telling their wanderings even by scent alone." One's legs can feel the difference between walking on concrete and walking on the floor of a redwood forest. Reaching out and brushing one's fingers against a tree can provide much needed contact. Listening to the songs of the birds, the fluttering wings of insects, the beautiful background noise of nature, creates a sense of calmness; a melody to which the whole world can dance. Blackberries plucked from the vine, untouched by chemicals, taste unimaginably sweeter and more fruitful, than those purchased in a store. The imagination flourishes when exposed to nature. While walking through a park, let the imagination wander. Explore what arises within the

mind when it is allowed to truly experience the natural world. See the tiny things!

Everybody needs beauty, as well as bread, places to play in and pray in, where nature may heal and cheer and give strength to the body and soul alike. – John Muir

Tree Exercise #1: Spend 15 minutes with a tree.

Further Instructions: Be without distractions; no cell phone, no computer, no book, no music.

Simply spend 15 minutes with a tree. It may take a while to find the tree, but be willing to take your time. This is an exercise in mindfulness and patience. Truly be a part of the experience and remember what it was like. When you are done, write down your reflections as they come to you.

18 Minutes with My Tree

I needed a minute to myself to reflect on my day. I went to one of the spots around the Dominican campus where I like to sit; behind the fence near Calaruega and Edgehill parking lot. I realized I had spent 3 years of reflection time under this beautiful tree without really appreciating it. There was branch that provides a perfect seat next to the tree. I looked up and noticed the tree had a way of protecting all that lies beneath its branches. I decided to climb into the tree. At first I couldn't figure out my way up. I walked around the trunk and saw that the tree had once been partially up rooted. All my years with this tree and I never knew it had suffered so greatly! I found that to climb into the tree I could stand on the dead branch I normally sit on and it would assist me in the first large step. Once in the tree, I got comfortable. Climbing was surprisingly easy. I threw my leg over one branch and wrapped my arms around another. I felt so secure. Trees have extremely solid features. The wood is steady and supportive. I rested my head against the wood and listened. Some birds were singing nearby. I could hear the cars and people talking. The leaves surrounded me like a force field. I could hear everything, but I was apart from it all; sheltered by this magnificent tree. It wasn't like being in a building apart from the

world. It was as if I simply observed and listened in order to take in the surrounding world. It was an amazingly peaceful force field of leaves. From my view point in the tree I gained a new perspective.

While sitting on the branch, I noticed that the area looked completely different than I remembered. The branch on which I normally sat had once fallen, broken off the tree I was currently perched in. The branch was a true life memento mori, a remembrance of death used in art to remind the viewer of their mortality. I also saw a yin yang made from the dead branch and the living branch; its leaves hung down almost touching the branch that lay on the ground. I looked around and noticed the other trees all had scars from missing branches. Dead branches surrounded the trunks; covered in brown leaves. I noticed the patterns of struggle and perseverance that each of the trees must have faced. Perhaps it was the same windstorm that tore branches off the different trees.

Circle of Life:

*For what is to die but to stand naked in the wind
and to melt into the sun? And what is to cease breathing,
but to free the breath from its restless tides, that it may
rise and expand and seek god unencumbered?
Only when you drink from the river of silence shall you indeed sing.
And when you have reached
the mountain top, then you shall begin to climb.
And when the earth shall claim your limbs,
then shall you truly dance. - Kahlil Gibran (Heinemann, 2005)*

Life truly is circles. Everything comes up and around again and again. The sun rises and falls. The moon becomes full then retreats into darkness. Birth through death, life cycles and cycles. As human beings we are limited to our personal experience and consciousness of reality. As we grow up our reality is shaped on the basis of what we've learned. If we do not look to the surrounding world for lessons that pertain to us, we may find ourselves lost in the brevity of our lives. In the larger world time is different. Generations of insects can pass in a couple days. Trees can tower above the forest for centuries. Recognizing the patters of different lifecycles can guide us through our own journeys. It is important to take our journey as it comes and do our best in the situations we are given as well as the ones we put ourselves in. Nature can teach us a new perspective on patience and allow us to step back from the time constrained, hectic rush of everyday life.

Have patience with everything that is unresolved in your heart and try to love the questions themselves, as if they were locked rooms or books written in a very foreign language. Don't search for the answers, which could not be giving to you now, because you would not be able to live them. And the point is to live everything. Live the questions now. Perhaps then, someday in the future, you will gradually, without even knowing it, live your way into the answers

– Rainer Maria Rilke

Tree Experience #2: Spend 15 minutes with a tree. Pay close attention to any patterns you notice. Further Instructions: Be completely involved with the present moment. Be without distractions. Begin by closing your eyes and taking a few deep breaths. Relax your body and find silence in your mind. Try to not dwell on any concept other than the present experience. Open your eyes and expand your mind out into the world. Do not look for anything in particular. Allow the patterns to present themselves to you.

Singing and Drumming with My Tree

I returned to the spot and climbed into my tree. I sat on a different branch this time. I listened to the quiet sounds; the leaves rustling, the birds singing, a nearby stream, distant cars, people laughing. All the sounds came together to form a peaceful, colorful blend of noise and music. I longed to add my own sound. So I began to hum. The song is called *Seed to Sow*. It was one of my favorite songs that I performed at Vocal Jazz Camp many years ago. It begins with a chant.

Kimu nkimaanyi

Buli muntu alina ensiigo

Omotima gwo gukulung 'aamyee

Buli muntu alina ensiigo

One thing I know

Everybody's got a seed to sow

Let you heart of hearts

Take you down the road

Everybody's got a seed to sow (Smith, 1990)

While singing I began to practice the drumming rhythms we learned over the past few weeks at the Korean Drumming class held at Whistlestop. I tried to chant in the tune in a rhythm that matched the drumming. It was difficult at first, but I figured out how to match the two songs. I slowed down the rhythm and slightly changed the tune of the song. This way I was able to put all of it together and add my song to the melody in the wind. It was so much fun! At points I would stop singing and listen to the drumming along with the sounds of the birds and surrounding

environment. It was so nice! The patterns in my music fell in and out of sync with the music of nature.

I had noticed the pattern of fallen branches on a previous visit to the tree, but had yet to reflect on it. For me, each dead branch represented a difficult challenge for the tree. Each recovered stem was the trees ability to heal itself. The signs were everywhere. All the standing trees grew towards the sun, having come through their previous challenges. Those that fell returned to the ground; giving back their energy to the land and feeding those that continued to reach for light. I visited Japan this semester. Part of our experiences was learning to write haiku. My reflection inspired this.

Haiku:

All have faced hard times

All trees have fallen branches

Green grass through brown leaves

Oneness in the Universe:

When we try to pick out anything by itself, we find it hitched to everything else in the universe.

- John Muir

Nature is incredibly powerful; regardless of how vast and diverse it may be. People in developed, wealthy, nations are increasingly losing touch with the natural world. This may be due to the emergence of technology which continues to change our world. Our fascination with and dependence on technology kidnaps our days and separates us more and more from contact with the outside world.

Incorporating nature into the planning of cities, the workplace, and our homes can have very positive effects on people. San Francisco's Golden Gate Park and New York City's Central

Park were planned into the creation of these great centers of human commerce; a break in the asphalt, a breath of almost fresh air. An oasis in the desert calls to all beings, humans and animals alike. Brought together at the watering hole we drink and experience the nature of community as well as the community of nature.

Tree Experience #3: Spend 15 minutes with a tree. Practice embracing the natural world.

Further Instructions: Begin by closing your eyes and taking a few deep breaths. Relax your body and find silence in your mind. Try to not dwell on any concept other than the present experience. Embrace the tree and feel it against your skin. Imagine your feet growing into the ground with the roots of the tree. Picture yourself physically connecting with the natural world.

Separate yet Familiar

While in Japan, I made a point of hugging different trees. It was wonderful to see and feel the types of trees that I had yet to see. In the Hiroshima Memorial Peace Park, the trees had an unfamiliar moss. It looked like grass growing off the trees. Some of the trees seemed to be weeping. I hugged one of these trees. It felt as if the tree was full of sorrow. I don't know if I felt that coming from the tree or if the feeling was coming from me. I may have been attributing my own feelings of sorrow into the tree. Perhaps it is a relationship between the tree and myself, and the park and the history of the area, and the soil from which it grows; a combination of all the separate yet familiar experiences.

From the dry heat, we hiked into the bamboo forest. The air was cool and brisk even before reaching the shade provided by the bamboo. While there, I hugged a tree growing into the trail. I felt stretched and tall, growing with the bamboo; reaching for the sunlight above the canopy. Again, I wonder if this was a feeling I absorbed from the tree, or if I input my own feelings of what I believe into the experience. Either way the tree and I belong to different yet

similar experiences.

In Hamamatsu, I visited the castle of Tokugawa Ieyasu, the founder and first shogun of the Tokugawa shogunate of Japan. The tree I hugged stabbed me in the hand as soon as I touched it; a fighter from the start. This makes sense for a samurai fortress. The tree would have taken in the essence of the surrounding ground. Another possibility is that the tree just poked me, and I automatically related it to my prior notions of the area. Past situations and expectations affect the experiences we have with other beings in the world. It is important to understand how we perceive the world, and to be aware of what we may be projecting onto it in the circumstances we face.

I do not accept any absolute formulas for living. No preconceived code can see ahead to everything that can happen in a man's life. As we live, we grow and our beliefs change. They must change. So I think we should live with this constant discovery. We should be open to this adventure in heightened awareness of living. We should stake our whole existence on our willingness to explore and experience.

- Martin Buber (Hodes, 1972)

Understanding of Myself

I have always enjoyed hugging trees. It's nice to feel something so solid. While hugging the trees in different places I've visited, I noticed several things. One observation was that I would feel different emotions with each tree. This may have to do with my expectations of the area or could have come from the tree itself. We tend to react to places according to how we think we should act. It would make sense that our emotions could follow a similar pattern. I also noticed that trees offer a sort of force field from the surrounding area. The leaves can create a cover that only limited light can penetrate; sounds are muffled; you are separated from the

surrounding world. I also felt connections with the different trees. I was reminded of specific times in my past when I'd felt the same emotions. Memories of loss, strength, perseverance, defeat, but always a re-growth. I have deeply enjoyed my times with trees and plan to continue spending time with them as my life goes on. Through exploration of our environment and mindfulness in our practices, we can achieve incredible insight to the reality of the world and in turn expand the reality in which we live.

Bridging to Psychology:

Nature offers many benefits that are difficult to measure. These are described by philosophers in terms that spark our imaginations and beg us to explore the depths of our minds and experiences. The peaceful, tranquility Thoreau found at Walden Pond can't be boiled down to a number to which we can compare to other nature experiences. There is no point system that encompasses the impact nature has on us. In the present world, data and analysis are a crucial part of research. The world of psychology looks to find significant evidence of the likeliness of an outcome for the majority of a population.

The subject of natural influence on psychological health is new to the field and requires more exploration. In order to add to this research I conducted a study that would look for a correlation between an individual's level of connectedness to nature and his or her personal sense of well-being. The study used the Connectedness to Nature Scale (CNS) and the World Health Organization Quality of Life Scale – BREF (WHOQOL-BREF), to survey students and faculty at Dominican University of California. A link to the survey with a introductory cover letter was also sent out using Facebook.com.

The WHOQOL-BREF is broken into subscales. The subscales consist of physical health,

which includes daily living activities, psychological health, all aspects of how one personally feels, social relationships, the interactions one has with others, and environment, which comprises of resources and make-up of the surrounding world. It was found that people with a higher sense of connectedness to nature have a significantly more positive sense of psychological health. It was also found that people who exercise outside have a more positive sense of physical, psychological and environmental health.

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Part Two

Influence of Connectedness to Nature on a Perceived Sense of Well-Being

Kendra Woodglass

Dominican University of California

Abstract

The purpose of this research is to further the knowledge of a correlation between an individual's level of connection to nature and his or her perceived sense of well-being. This study uses the Connectedness to Nature Scale and the World Health Organization Quality of Life Scale – BREF, to survey students and faculty at Dominican University of California. A link to the survey with an introductory cover letter was also sent out using Facebook.com.

Influence of Connectedness to Nature on a Perceived Sense of Well-Being

As technology advances, human beings are increasingly separated from the natural world (overcrowding, pollution, etc). Nature provides an important context in which people can flourish and thrive, a connection that is important to uphold. Connectedness to nature represents an individual's trait levels of feeling emotionally connected to the natural world. It has been found that connectedness with nature influences many aspects of health (Mayer & Frantz, 2004). The Constitution of the World Health Organization defines health as "A state of complete physical, mental, and social well-being not merely the absence of disease. . .". The present study promotes the theory that improved mental health is influenced by a more ecologically based sense of self, which can contribute to a higher sense of psychological well-being.

Measures

Connectedness to Nature Scale Mayer and Frantz (2004) undertook five studies to assess the validity and reliability of the 14-item Connectedness to Nature Scale (CNS). Data was collected from subjects from two communities in Oberlin, OH, and students at Oberlin College. The first study assessed the internal validity. Sixty individuals (31 male, 29 female) participated in taking the CNS along with the New Environmental Paradigm (NEP). The NEP aims to measure individuals' 'primitive beliefs' concerning their relationship to the natural world. A high correlation was found between the two scales. This provides evidence for internal consistency of the CNS and for the convergent and discriminant validity of the CNS with the NEP. Cronbach's alpha was used to assess the reliability of the CNS and was found to be .84. The second study consisted of 102 participants (42 males and 60 females) and looked into the CNS's association with ecological behaviors as well as one's identity as an environmentalist. The CNS and NEP were administered; two items were added to assess participants' identity as an environmentalist. The pattern of results provided strong support of the CNS's relation to ecological behavior. The third study examined the validity of the CNS and its ability to predict real life

decisions. Participants were students enrolled in introductory chemistry, environmental studies, math, and psychology courses. It was found that students in classes that focused on environmental issues were more connected with nature than those who studied other topics, thus the CNS does capture a personality trait relevant to real world decisions. The fourth study examined the CNS in relation to current work on subjective well-being. Participants (31 men, 89 women, and 15 unstated) from outside the college community completed the CNS, the NEP, and the general value scale (Schultz, 2000), which measures biospheric, egoistic, and altruistic motivations for environmental protection. A positive association was found between the CNS and general biospheric value orientation but not with egoistic or altruistic value orientations. The fifth study compared the CNS with the inclusion of nature in the self (INS) scale and the implicit associations test (IAT); measures used by Shultz (2001; Schultz et al., 2004). The INS consists of seven pairs of overlapping circles, labeled 'me' and 'nature', which vary in amount of overlap. Participants are to choose the one best represents their sense of connection to the natural world. The IAT measures a cognitive connection to nature by having participants distinguish between words that suggest 'me' or 'not me', as well as 'nature' words or 'built' words. This measure is completed on a computer. Participants were 57 undergraduate psychology majors. The CNS correlated moderately with the INS and marginally with the IAT. After completing these five studies, Mayer & Frantz (2004) concluded that the CNS is a reliable and valid tool to be used for activists and researchers alike in monitoring the effectiveness of promotion of a more environmentally sustainable society.

World Health Organization Quality of Life-BREF The World Health Organization Quality of Life-BREF contains 26 items and is derived from data collected using the WHOQOL-100 assessment. It produces scores relevant to four domains related to quality of life: physical health, psychological, social relationships and environment. Physical health pertains to activities of daily living, mobility, pain and discomfort, sleep and rest, work capacity, and dependence on medicinal substances and medical aids. Psychological health encompasses bodily image and appearance, negative feelings, positive

feelings, self-esteem, spirituality, religion, personal beliefs, thinking, learning, memory, and concentration. Social relationships section involves personal relationships, social support, and sexual activity. The environmental aspect of the scale comprises of financial resources, freedom, physical safety, security, accessibility to and quality of health and social care, home environment, availability of new information and skills, participation in and opportunities for recreation and leisure activities, the physical environment (pollution / noise / traffic / climate), and transportation and mobility. Scores correlate highly with WHOQOL-100 scores. In addition, the WHOQOL-BREF measures one's psychological health in the context of their culture and value systems, and their personal goals, standards and concerns (Skevington, Lofty, & O'Connell, 2004). Psychometric properties were analyzed using cross-sectional data obtained from a survey carried out by 23 countries. Participants, 11,830 adults, completed the survey along with socio-demographic and health status questions. Domain scores found using the WHOQOL-BREF demonstrated good discriminant validity, content validity, internal consistency and test-retest reliability (The WHOQOL group, 1998).

Resilience, Vitality, and the CNS Countless factors play into individuals' sense of psychological well-being. In attempting to improve overall sense of well-being, researchers have examined the relationship between these factors and individuals' connectedness to nature.

Vitality is defined as having physical and mental energy. In order to examine the vitalizing effects of spending time outdoors in nature, Ryan, Weinstein, Bernstein, Brown, Mistretta, & Gagne (2010) conducted five studies. The first two studies focused on subject vitality in nature versus non-nature outdoor context. The other three looked at whether the presence of nature is responsible for the positive outdoor effects. The first study consisted of 171 undergraduates (123 female, 48 male). At the onset of the study participants were assessed for baseline vitality using the Subjective Vitality scale (SVS; Ryan & Frederick, 1997) which consists of 7 items ("I feel alive and vital"; "I have energy and spirit"; etc.) to which participants respond on a 1 (strongly disagree) to 7 (strongly agree) scale with

respect to how they feel “right now”. Next, each participant rated their anticipated level of vitality in response to eight brief descriptions which included combinations of three contextual variables: setting (indoor, outdoor), social interaction (with other(s), alone), and physical activity (active, sedentary). People reported higher levels of vitality when outside, in social situations, and when physically active. It was found that apart from the social and physical activities, outdoor experience itself is related to vitality. The second study focused on the vitalizing effects of actually being in an outdoor versus indoor environment. Eighty undergraduates (66 women and 14 men) completed the Subjective Vitality scale. Next, after being randomly assigned to an indoor or outdoor condition, participants were guided on a 15 min walk during which they could focus on or think about whatever they wished. A second questionnaire was used to assess vitality immediately following the walk. While controlling for social and physical activity, it was found that participants walking outdoors reported a greater change in vitality than indoor walkers. Since the second study only tested one setting contrast, the third study was designed to generalize these results. Ninety-seven undergraduates (70 women, 27 men), completed the Subjective Vitality scale and were assigned to either a nature or non-nature condition. Next, participants were shown a set of four slides, appearing for 2 min each, depicting images of either entirely man-made or entirely nature environments. A recorded script, used in both conditions, encouraged participants to ‘attend to their environments, to notice colors and textures, and to imagine sounds and smells’. Participants then completed the Subjective Vitality scale again. It was found that participants who were exposed to images consisting of natural environments experienced an increase in vitality, whereas participants exposed to man-made environments experienced a drop in vitality. The fourth study observed indoor and outdoor settings effects on subjective energy, as encountered in everyday life. One-hundred thirty-eight students (97 women, 41 men), completed a 14-day diary study. Each day required a ‘day-end report’ which asked about outdoor, nature, social, and physical activities experienced throughout the day. Some participants completed an experience-sampling model and

received pages randomly throughout the day. When paged participants were to report on current activities, including whether they were indoor or outdoor and how much nature was present. It was found that individuals felt more energized when outdoors. An overall greater sense of vitality was present on days in which participants spent a meaningful portion of time outdoors. Using mediation analyses it was found that being outdoors was vitalizing in large part due to the presence of nature. The fifth study used an experience-sampling approach consisting of 6 samples per day. Fifty-one students (43 female, 8 male), were to report on whether they were inside or outside, and the amount of natural and artificial elements surrounding them. Four items from the SVS were used to assess trait subjective vitality. Experience-level measures assessed the presence of others, physical activity, outdoors, and nature experience. State vitality was assessed using the SVS. After including the sensitive measures of physical and social activity, as well as the presence of nature in both indoor and outdoor settings, it was found that outside versus inside no longer had a greater effect on energy. Nature was found to mediate the effect of being outside on vitality. Exposure to nature while in an outdoor environment, which is more likely, appears to increase an individual's vitality.

For example, Ingulli & Lindbloom (2013) examined the correlation between connectedness to nature and subjective sense of psychological resilience. Resilience is the positive capacity of people to cope with stress. It allows people to pull themselves out of desperate situations and survive catastrophes. There were 150 participants (54 men, 94 women, and 2 unstated) from the Pacific Northwest United States who completed the Resilience Scale (RS) and the CNS. Significant correlations were found between the scores on the CNS and the RS. Individuals who scored higher on a measure of connection with nature were likely to score higher on a measure of psychological resilience.

Connectedness, Spirituality, Outdoor Recreation, and Psychological Well-being. In addition to resilience and validity, Wolsko & Lindberg (2013), focused on the relationship between psychological well-being and the personal experience of connection with nature. The purpose of the

study was to examine the best ways to foster positive experiences of “being-in-nature” in the general population. The second purpose was to examine the relationship between connection with nature and mindfulness. Different patterns of outdoor recreation and connection with nature were also observed. Brown and Ryan (2003) conducted three studies. The first study consisted of 265 participants from a 2-year community college in the Pacific Northwest of the United States. Participants completed the CNS, the Mindful Attention Awareness Scale, and four measures of psychological well-being – the Flourishing scale (Diener et al., 2010), the Subjective Vitality scale (Ryan & Frederick, 1997), and the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010). The study found a significant relationship between connection to nature and well-being in that individuals who reported experiencing more connection with nature scored higher on all measures of psychological well-being and low on the negative emotions scale. In the second study, 223 participants completed a survey containing all the measures used in the first study. Additionally participants completed an assessment of participation in nine outdoor recreational activities (hiking, backpacking, cross-country skiing or snowshoeing, non-motorized boating, hunting, fishing, motorized boating, ATVing, and snowmobiling). Participants estimated the number of days per year they did each activity. Similar to the first study, positive results were found in relation to the CNS and measures of psychological well-being. In addition, appreciative outdoor recreation had a consistent and significant positive relationship with all measures of psychological well-being. The third study consisted of 410 participants (242 from the adults in the community, 168 college undergraduates). Participants completed a survey containing an abbreviated measure of the CNS and an assessment of frequency of participation in the following seven sets of outdoor recreational activities: (1) recreating with a dog – walks, parks, and on trails; (2) walking/hiking or jogging/running without a dog; (3) cross-country skiing or snowshoeing; (4) canoeing, kayaking, rafting, stand-up paddling, or sailing; (5) hunting or fishing; (6) riding an ATV, off-road motorcycle, or snowmobile; and (7) power boating or jet-skiing. It was found that individuals who

engaged in more appreciate outdoor activities (items 1-4) as opposed to motorized outdoor activities (items 6 and 7) experienced more connection with nature.

Kamitsis & Francis (2013) set out to determine the extent to which engaging with nature, through exposure and connectedness, influences psychological well-being, and the role spirituality plays in this relationship. The sample comprised of 190 people (132 females, 58 males) between the ages of 18 and 69 years. Participants were recruited from RMIT University, Australia and the surrounding general population. Participants filled out a survey which consisted of the CNS (Mayer & Frantz, 2004), the Mysticism Scale (MS, Hood, 1975), and the WHOQOL-BREF (Murphy et al., 2000). It was found that higher levels of nature exposure and connectedness were associated with better psychological health. Nature exposure and connectedness are also positively associated with spirituality which correlates positively with well-being. It was concluded that nature exposure and connectedness can be mediated by spirituality and positively influence psychological well-being.

The purpose of the present study is to advance the research that promotes connectedness to nature as a means of improving psychological well-being. It is hypothesized that a positive correlation will be found between scores on the CNS and the WHOQOL-BREF. People who experience more connection with nature will have a more positive sense of well-being. It is also hypothesized that due to the previous correlation, people who exercise outdoors have a higher perceived quality of life than those who exercise inside.

Method

Participants

This research aimed to shed more light on the influence of connection to nature on sense of well-being. Participants were recruited from courses at Dominican University and via Facebook. Participants consisted of college students, university professors, and the general public (58 males, 71 females, 5 unstated).

Materials and Procedure

Participants received an email containing a link to the survey using surveymonkey.com. Permission was granted by instructors for use of student emails. The survey consisted of two scales. The 14-item connectedness to nature scale (see Appendix A, CNS) measures the degree to which one feels a part of the natural world, utilizing a 5-point response scale, where 1=strongly disagree and 5=strongly agree. The World Health Organization Quality of Life-BREF (see Appendix B, WHOQOL-BREF) consists of 26 items which measure well-being in the context of four domains; physical health, psychological health, social relationships, and environment. Three questions to assess demographics and 2 questions about exercise habits were also in the survey. A letter of introduction (see Appendix C) was included prior to the survey. The survey took approximately 20 minutes to complete. Data was collected through surveymonkey.com to assist in confidentiality. Permission to conduct this study was permitted by the IRB Review Board at Dominican University of California (see Appendix D)

Results

The WHOQOL-BREF is broken into subscales. The subscales consist of physical health, which includes daily living activities, psychological health, all aspects of how one personally feels, social relationships, the interactions one has with others, and environment, which comprises of resources and make-up of the surrounding world.

The research hypothesis that connectedness to nature influences sense of well-being was partially supported. Pearson's correlation between connectedness to nature and psychological health was $r(135) = .193, p < .05$ (shown in Figure 1). This result partially supports the research hypothesis that those with a higher sense of connectedness to nature will have a better sense of well-being. Connectedness to nature is positively correlated with psychological health. Connectedness to nature is not significantly correlated with the other domains of the quality of life scale; physical health, social relationships, or environment.

The second hypothesis that exercise environment influences sense of well-being was partially supported. Independent samples t-test revealed a significant difference between people who exercise inside and those who exercise outside in three out of four domains for quality of life. Independent samples t-tests are as follows. Physical health $t(128) = -2.30, p < .05$, Psychological Health $t(128) = -2.18, p < .05$, and Environment $t(129) = -2.34, p < .05$ (shown in Figure 2). People who exercise outside have a more positive sense of physical, psychological, and environmental health than people who exercise inside. The means and standard deviations for the various domains are shown in Figure 3.

Independent samples t-test revealed a significant difference between people who exercise inside and those who exercise outside in levels of connectedness to nature $t(129) = -2.12, p < .05$. People who exercise outside have a better sense of connectedness to nature than those who exercise inside.

Pearson's correlation between age ($M = 25.03, SD = 9.9$) and connectedness to nature was $r(135) = .263, p < .01$. This result shows a positive correlation between age and connectedness to nature. As you get older your connectedness to nature increases.

Discussion

The main hypothesis that people with a higher connectedness to nature will have better sense of well-being than those who lack this connection was partially supported. Connectedness to nature is positively correlated with the psychological health domain of well-being. This is the primary domain that was expected to be affected. Spending time in connection with nature is beneficial to ones psychological health. There are different aspects of nature that appeal to each individual's personal preferences as well as unconscious attractions. Ingulli & Lindbloom (2013) found similar results stating that individuals who scored higher on a measure of connection with nature were likely to score higher on a measure of psychological resilience. Wolsko & Lindberg (2013) found a significant relationship between connection to nature and well-being in that individuals who reported experiencing more connection with nature scored higher on all measures of psychological well-being and low on the

negative emotions scale. Spending time in the natural world can be used as a treatment option for people with therapeutic needs. It is also easily combined with other forms of treatment. Many practices that are typically inside can be conducted outside without changing much of the primary care.

The hypothesis that people who exercise outside will have a higher sense of well-being than those who exercise inside was partially supported. People who exercise outside scored significantly higher than those who exercise inside in the well-being domains of physical health, psychological health, and environment. Ryan et al. (2010) found that participants who were exposed to images consisting of natural environments experienced an increase in vitality, whereas participants exposed to man-made environments experienced a drop in vitality

It was also found that people who exercise outside are significantly more connected to nature. Exercise in many different forms has positive effects on well-being. Participating in these activities outside can provide other benefits to one's health. This is similar the results found by Ryan et al. (2010) that showed participants walking outdoors reported a greater change in vitality than indoor walkers. Exercise conducted outside can be used in treatment for many ailments that are both physical and psychological.

This research is extremely important for the well-being of not only human kind but for the natural world as a whole. Future research must be conducted to explore the various aspects of the environmentally focused approach to healing. This will, in turn, add to the research in environmental sustainability as well. Nature exposure can be an effective form of preventative care that is cost efficient and accessible to the greater population. Future research may also focus on aspects of mindfulness in relation to connection to nature and well-being.

Figure 1

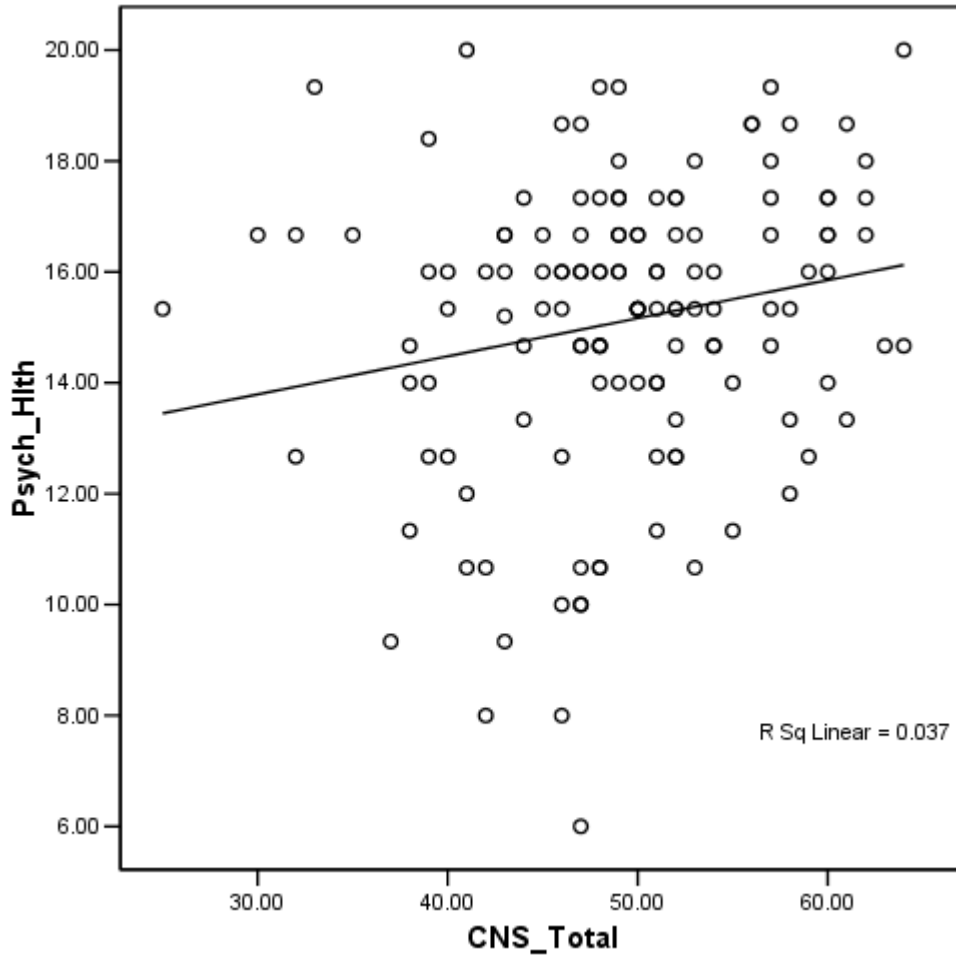


Figure 2

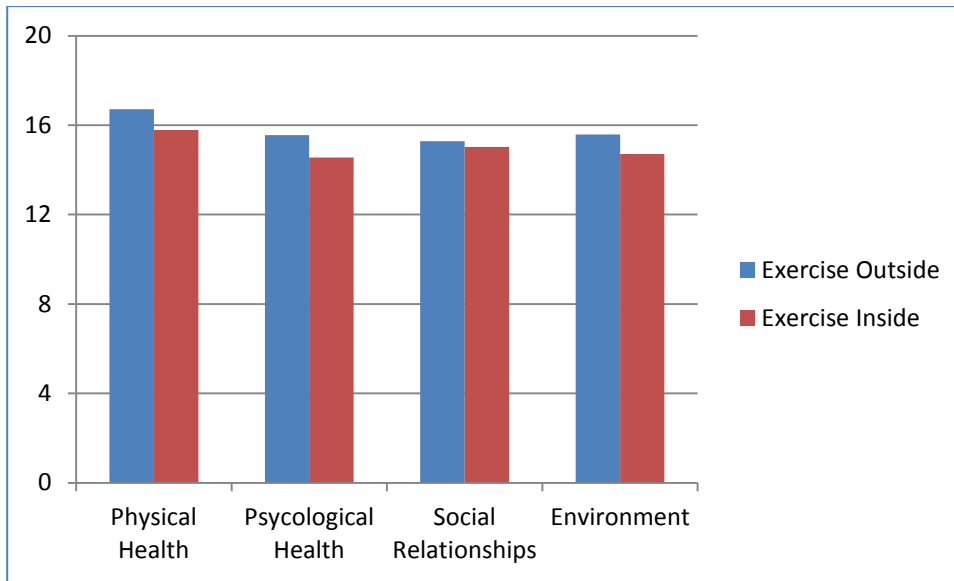


Figure 3

		Exercise Outside	Exercise Inside
Physical Health			
	Mean	16.71	15.79
	Standard Deviation	2.03	2.53
Psychological Health			
	Mean	15.56	14.56
	Standard Deviation	2.31	2.84
Social Relationships			
	Mean	15.28	15.02
	Standard Deviation	3.5	2.94
Environment			
	Mean	15.59	14.71
	Standard Deviation	1.87	2.4
CNS			
	Mean	50.44	47.72
	Standard Deviation	7.53	7.2

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Appendix A: Connectedness to Nature Scale

Please answer each of these questions in terms of *the way you generally feel*. There are no right or wrong answers. Using the following scale, in the space provided next to each question simply state as honestly and candidly as you can what you are presently experiencing.

- | 1 | 2 | 3 | 4 | 5 |
|-------------------|--|---------|---|----------------|
| Strongly disagree | | Neutral | | Strongly Agree |
| ___1. | I often feel a sense of oneness with the natural world around me. | | | |
| ___2. | I think of the natural world as a community to which I belong. | | | |
| ___3. | I recognize and appreciate the intelligence of other living organisms. | | | |
| ___4. | I often feel disconnected from nature. | | | |
| ___5. | When I think of my life, I imagine myself to be part of a larger cyclical process of living. | | | |
| ___6. | I often feel a kinship with animals and plants. | | | |
| ___7. | I feel as though I belong to the Earth as equally as it belongs to me. | | | |
| ___8. | I have a deep understanding of how my actions affect the natural world. | | | |
| ___9. | I often feel part of the web of life. | | | |
| ___10. | I feel that all inhabitants of Earth, human, and nonhuman, share a common 'life force'. | | | |
| ___11. | Like a tree can be part of a forest, I feel embedded within the broader natural world. | | | |
| ___12. | When I think of my place on Earth I consider myself to be a top member of a hierarchy that exists in nature. | | | |
| ___13. | I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground of the birds in the trees. | | | |
| ___14. | My personal welfare is independent of the welfare of the natural world. | | | |

Appendix B: The WHOQOL-BREF

		Very Poor	Poor	Neither poor nor good	Good	Very good
1 (G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that (physical) pain prevents you from doing what you need to do?	1	2	3	4	5
4 (F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5 (F4.1)	How much do you enjoy life?	1	2	3	4	5
6 (F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7 (F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5

11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very Poor	Poor	Neither poor nor good	Good	Very good
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18 (F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20 (F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21 (F15.5)	How satisfied are you with your sex life?	1	2	3	4	5
22 (F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23 (F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24 (F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25 (F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following questions refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quiet often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Appendix C: Letter of Introduction

Invitation to Participate

You are invited to participate in this research because you are presently enrolled in courses at Dominican University of California and you are at least 18 years old or are 17 and have parental permission to participate in research.

Statement of Purpose

The purpose of this study is to investigate the relationship between one's connection to nature and psychological well-being.

Procedure

This study will take approximately 20 minutes total to complete. During your participation in this study, you will be asked to complete a 45 item survey.

Potential Risks

There are no known risks associated with participation in this experiment. Should you experience any unexpected discomfort as a result of your participation in this experiment, please contact the researcher at kendra.woodglass@students.dominican.edu.

Potential Benefits

There are no known benefits associated with your participation in this experiment, other than the potential for you to gain some understanding and insight into the performance of psychological research.

Confidentiality

This is to inform you that any data obtained during this study that could identify you will be kept strictly confidential. When completed, this research may be published in journals or presented at psychological conferences. However, the data collected will only be presented in summary form -- no individuals will be identified in this reporting process.

Offer to Answer Questions

If, in covering this material so far, you have any questions regarding either the nature of the research or your role as a participant, you should feel free to ask those questions at this time. In addition, if any questions should arise in the future, either during or following your participation, please feel free to contact the researcher.

Voluntary Participation

You are free to decide not to participate in this study, or to withdraw at any time, without affecting your relationship with the researchers or with DUC.

Dissemination of Results

Results of this study may be presented at the university-wide Academic Showcase, plus appear in summary form at research conferences and professional journals. Copies of these documents may be made available upon request by contacting the primary investigator.

Kendra Woodglass
Dominican University of California
Kendra.woodglass@students.dominican.edu

Appendix D: IRB Approval Letter



December 19, 2013

Kendra Woodglass
45 Medway Road
San Anselmo, CA 94960

Dear Kendra:

I have reviewed your proposal entitled *Influence of Connectedness to Nature on a Perceived Sense of Well-Being* submitted to the Dominican University Institutional Review Board for the Protection of Human Participants (IRBPHP Application, #10207). I am approving it as having met the requirements for minimizing risk and protecting the rights of the participants in your research.

In your final report or paper please indicate that your project was approved by the IRBPHP and indicate the identification number.

I wish you well in your very interesting research effort.

Sincerely,

A handwritten signature in black ink that reads "Martha Nelson". The signature is written in a cursive, flowing style.

Martha Nelson, Ph.D.
Associate Vice President for Academic Affairs
Chair, IRBPHP

cc: Bill Phillips

Institutional Review Board for the Protection of Human Subjects

Office of the Associate Vice President for Academic Affairs • 50 Acacia Avenue, San Rafael, California 95901-2298 • 415-257-1310

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