Decolonizing The Mind: Using Mindfulness Research and Traditional Indigenous Ceremonies to Delete the Neural Networks of Colonialism

Introduction to Building Research Capacity: Historical Trauma and CBPR

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Presentation

- Define Mindfulness
- Purpose of Mindfulness
- Mindfulness Practice: Mountain
- Trauma, Stress, Adverse Experiences in the Brain
- Mindfulness
  - Neurobiology and Benefits
  - Breath Awareness Exercise
- Decolonization
  -- Neurodecolonization
  -- Traditional Contemplative Practices
Key Points of Workshop

1) Neuroscience research confirms that mindfulness practices can positively change our brain’s structure and function.

2) Mindfulness practices improve awareness and concentration; ease the effects of trauma; raise optimism and fortify emotional self-regulation; create a sense of calm; increase resilience; and reduce conflict.

3) Mindfulness practices are easy to implement into school curriculum; the cost of implementation low; they are culturally neutral; and the evidence-base shows that they work to improve health and well being.

4) Mindfulness practices are an essential part of traditional tribal practices, behaviors, ceremonies.
potential:

“very single person has very single human being can experience that —

David Lynch
Mindfulness: Being deeply aware of what is happening from moment to moment outside and inside us, without judging or attaching to the content, feelings, and emotions that arise.

It refers to living deeply and richly in the present moment and not responding to life in a distracted and mechanical manner.
Have a purpose

“I am meditating in order to generate in my mind more positive energy, and to decrease the negative energy for the benefit for myself and all others.”
Mindfulness training in MSW program
Humboldt State University, 2010-2011
Mindfulness at Fort Lewis College, Durango, Colorado, March 2016
Mindfulness at the Yellow Bird House, Arcata, California, 2012
Arundhati and Solana, Arcata, California, 2013
Mindfulness Practice

Mountain
Mindfulness
Meditation
Exercise
Trauma, Stress, Adverse Experiences
The brain that does not bounce back from the trauma, stress, or adverse experiences can trigger a “hardwiring” of anxiety, fear, trauma, hopelessness, and disorganization.
Stress and the Brain

Chronic stress chemicals floods the brain with an enzyme (protein kinase C) that breaks down delicate the dendritic spines of the neurons in the prefrontal cortex (Dendritic spines are associated with memory and learning).

They can Repair when stress is eliminated.
Healthy Brain Chemistry

- Serotonin: the self-esteem & sleep chemical
- Acetylcholine: the alertness chemical
- Oxytocin: the trust chemical
- Endorphins: the pain killer chemical
- Melatonin: the R&R chemical
- Dopamine: the reward chemical
- Norepinephrine: the excitement chemical
- Phenylethylamine: the bliss & infatuation chemical
In one study, “Middle-aged people who were physically active not only had higher aerobic capacities, but also longer telomeres than those who were sedentary. They had telomere lengths that were similar to people much younger than they were.”

In another study, “Telomere lengths were shortest for both depressed and healthy participants who were showing chronic stress. Many of the depressed participants exhibited disturbed cortisol regulation, which may explain why they had a higher overall probability of having shorter telomere lengths.” (Norrback, et al., 2015).
Trauma Paradigm

- Mendel Heredity
- Romanian Orphans
- Wounded Knee Survivors
- Indian Boarding School Survivors
- Michael Meany Mother Rats
- Harry Harlow Rhesus Monkeys
Telomeres Show Signs of Early-Life Stress
Shaikh-Lesko, New Scientistist, April 7, 2014

“Telomere length in children is associated with a stressful home environment, and genes that encode certain neurotransmitters may heighten the effect of that stress.”

In a study of family stability, “Children living in the most stressful environments had telomeres that were on average 40 percent shorter than those of the children studied who were living in the most nurturing settings.”

Daniel Notterman, Penn State, 2007)
Chronic stress distorts key brain chemicals: serotonin (sleep), dopamine (pleasure), and noradrenaline (energy levels).
Fearful ‘Memories’ Passed Between Generations Through Genetic Code.

An Important study suggests traumatic events that happen to a parent could be passed down through their genes onto their children. Epigenetics: suggests that this inheritance changes the way our genes express.

“Parental olfactory experience influences and neural structure in subsequent generations”

(Nature Neuroscience, 2013)
Mother may pass daughters a brain wired for depression

“Mother may pass on vulnerability to depression in much the same way they give their daughters green eyes or curly hair – girls might inherit a brain structure that’s predisposed to mood disorders, a small US study suggests” (Reuters, February 18, 2016)

http://www.reuters.com/article/us-health-neuroscience-mothers-depression-idUSKCN0VR2WN
The Bullied Brain: Brain-Derived Neurotrophic Factor

6). BDNF is part of a cascade of proteins, produced in the brain that promotes neuron growth and stops neurons from dying.
The Costs of Bullying in the Brain: Bully Mice

Bigger, aggressive white mice bullied smaller brown mice created social stress for smaller brown mice. The prolonged stress of being bullying created an increase of BDNF in the brain.

This activated genes in the front part of the brain which produced high levels of social anxiety, withdrawal, depression.

(University of Texas, Southwestern Medical Center, 2006)
The Neurobiology of Mindfulness

The neuroscientific investigation of mindfulness focuses on the neural systems that are utilized to achieve meditative states and to determine the effects that regular practice of mindfulness has on brain structure.
Breath Awareness

**Purpose:** “I am meditating in order to generate in my mind more positive energy, and to decrease the negative energy for the benefit for myself and all others.”

**Set One:**

“**Breathing in, I calm body and mind.**”
“**Breathing out, I let go.**”

**Set Two:**

Breathing in, “**Dwelling in the present moment.**”
Breathing out, “**This is the only moment.**”
Hanges happen after only 11 hours of practice.

(osner, et al., 2010)
significant, lasting changes in weeks

- minutes of practice per day for weeks changes brain empathy, and stress (arah azar, et al.)

\text{Reduction in stress –}
Mindfulness mediates conflict

**Conflict-related Insula:**

Mindfulness meditation activates the “insula, which is associated with interoception, the sum of visceral and “gut” feelings that we experience at any given moment,

Is a key region involved in processing transient bodily sensations, thereby contributing to our experience of ‘selfness’”
Mindfulness increases Emotional Intelligence

The temporal parietal junction becomes activated during meditation.

This area is associated with the ability to perceive the emotional and mental state of others.

This brain area is more active in meditators than non-meditators, even when they are not meditating.
Mindfulness Improves Brain Waves

**Gamma Waves**
31-120 cps
Hyper brain activity, which is great for learning.

**Beta Waves**
13-30 cps
Here we are usually engaged in activities and conversation.

**Alpha Waves**
8-12 cps
Very relaxed. Deepening into meditation.

**Theta Waves**
4-7 cps
Drowsy and drifting down into sleep and dreams.

**Delta Waves**
.5-3 cps
Deeply asleep and not dreaming.
EEG Studies of Meditative States:

Long-term meditators have higher levels of alpha and theta band activity which is associated with sleep and rest (Aftanas & Golocheikine, 2005; Andresen, 2000; J.M Davidson, 1976; Delmonte, 1984)

Meditation practices that emphasize deep physical relaxation are more likely to produce higher theta and delta activity (deep sleep); practices that focus on intensive concentration will have higher alpha and beta power (Didonna, 2009, p. 49)
Mindfulness Improves Brain Waves

Lutz et al, 2004 found that the ratio of gamma wave, as opposed to slow oscillatory activity was higher for Tibetan Buddhist monks than for controls during a resting baseline. When the subjects began a loving-kindness meditation the difference increased significantly.

Gamma waves are a pattern of brain waves associated with perception and neural consciousness. Long-term meditators have the ability to put the brain into a state in which it is maximally sensitive and consumes power at a lower (or even zero) rate.
Benefits of Mindfulness:

Reducing stress, healing physical disease, improving mood disorders and behavior, eliminating addictions, and enhancing learning capacities (Baer, 2003; Rystak, 2003; Howard, 2006; Begley, 2007; Doidge, 2007; Williams, Teasdale, Segal, & Kabat-Zinn, 2007;).
Effectiveness of Mindfulness

The effectiveness of mindfulness has groups as diverse as Fortune 500 companies, the U.S. Marines, Police, and Adult and juvenile prisons offering formal mindfulness instruction to members of their organizations.
Benefits of Mindfulness

Mindfulness training has been successfully used to resolve anxiety, depression, obsessive compulsive disorders, and the Post-traumatic Stress Disorder (PTSD) of military veteran's and survivors of violence.
Benefits of Mindfulness

Elementary and high schools students who learn these techniques report improvements in their concentration, focus, awareness, relaxation, self-management, memory, self-esteem, vitality, positive affectivity, optimism, and self-actualization (Brown and Ryan, 2003).
Decolonization

For Indigenous Minds Only
A Decolonization Handbook

Edited by
Waziyatawin and Michael Yellow Bird
Decolonization theory: Colonization is traumatic. Overcoming colonization creates greater well being among Indigenous Peoples.

Decolonization Practice: includes privileging and engaging in Indigenous philosophies, beliefs, practices, and values that counter colonialism and restore well being.
What is Decolonization?

“...the **restoration** of cultural practices, thinking, beliefs, and values that were taken away or abandoned (during colonization) but are relevant and necessary for survival and well being.

It is the **birth** and use of new ideas, thinking, technologies and lifestyles that contribute to the advancement and empowerment of Indigenous Peoples.”

Decolonizing Methodologies

Neurodecolonization

“Your worst enemy cannot harm you as much as your own thoughts, unguarded. But once mastered, no one can help you as much, not even your father or your mother.” - Buddha
Neurodecolonization

Refers to all the ways of understanding how our brains, genetics, and immune systems work when under the stresses of colonialism and during optimal decolonization processes.
Neurodecolonization (Traditional ceremonies to train the mind and change the brain’s capacity to heal from the trauma of colonialism)
The Brain on Ceremony
Traditional Indigenous contemplative/mindfulness practices can heal the effects of Colonialism.

Arikara Engaged in Ceremonial Mindfulness in Traditional Earth lodge
Neurodecolonization: Sacred Object Meditation

Arikara brain on happiness, joy, optimism, feelings of well being

SPECT Images at Baseline and During Meditation

Attention Area

Baseline

Meditation

Attention Area
Singing to the Sacred Cedar
Ojibwe Snowshoe Dance

Comparison of Baseline to Prayer

Baseline Scan

Language Center

Prayer Scan

Language Center

Brain Waves Graph

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0.5-3 cps
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