
*Think not lightly of good, saying,
"It will not come to me."*

Drop by drop is the water pot filled.

*Likewise, the wise one,
gathering it little by little,
fills oneself with good.*

Buddha's Brain:

Lighting up the Neural Circuits of Happiness, Love, and Wisdom

Esalen

September, 2015

Rick Hanson, Ph.D.

The Wellspring Institute for Neuroscience and Contemplative Wisdom

www.WiseBrain.org

www.RickHanson.net

Topics 1

- Overview
- Self-directed neuroplasticity
- Self-compassion
- Resource yourself
- How to grow inner strengths
- The negativity bias
- Steadying the mind
- Cultivation
- Positive neuroplasticity: taking in the good
- Getting good at taking in the good

Topics 2

- **The evolving brain**
- **Key resource experiences**
- **Flowers pulling weeds**
- **Being and doing**
- **Your loving nature**
- **A kind heart**
- **Feeding the hungry heart**
- **Equanimity**
- **Strength with heart**
- **Coming home**



**It's Good to Be Happy
(and loving and wise)**

What Is Happiness?

Hedonia

Eudaimonia

Benefits of Happiness

- **Feels good (duh)**
- **Better health**
- **Longer life**
- **Greater resilience**
- **More success**
- **Stronger relationships**
- **More cooperative, giving, and loving toward others**



How to Be Happy

What Shapes Your Course?

Challenges

Vulnerabilities

Resources

Where Are Resources Located?

World

Body

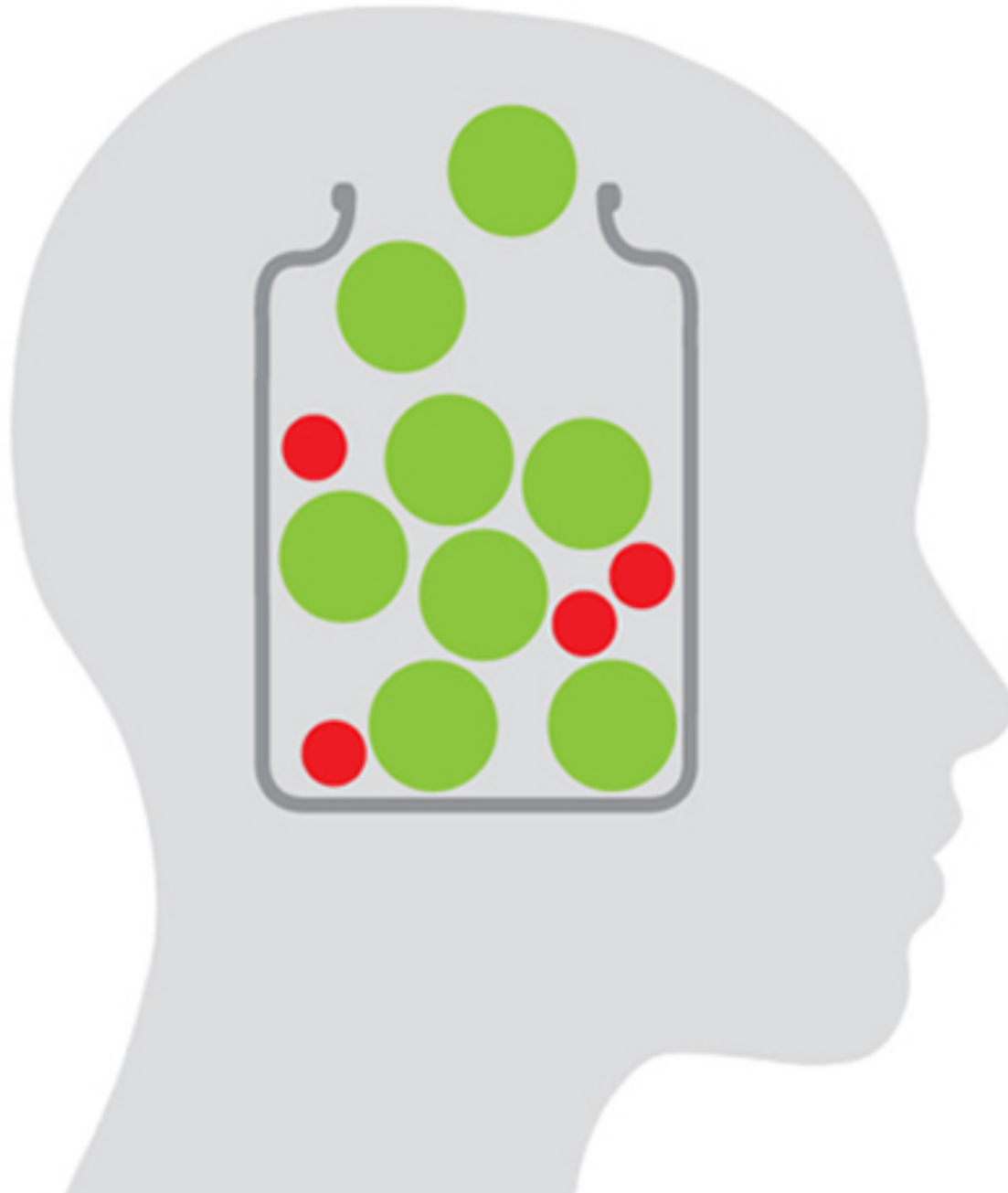
Mind

Resources in Your Mind

- **Understandings**
- **Capabilities**
- **Positive emotions**
- **Attitudes**
- **Motivations**
- **Virtues**

Two wolves in the heart

INNER STRENGTHS ARE BUILT FROM BRAIN STRUCTURE





**How do you get these inner strengths
into your brain?**



Experiencing Positive Neuroplasticity

Pick a partner and choose an A and a B (A's go first). Then you'll take turns, with one partner mainly speaking while the other person listens, exploring this question:

Speaker: What are some of the good facts in your life these days?


Listener: Find a sincere gladness for the other person.

Both: Repeatedly take 5-10 seconds to feel and register enjoyable, beneficial experiences



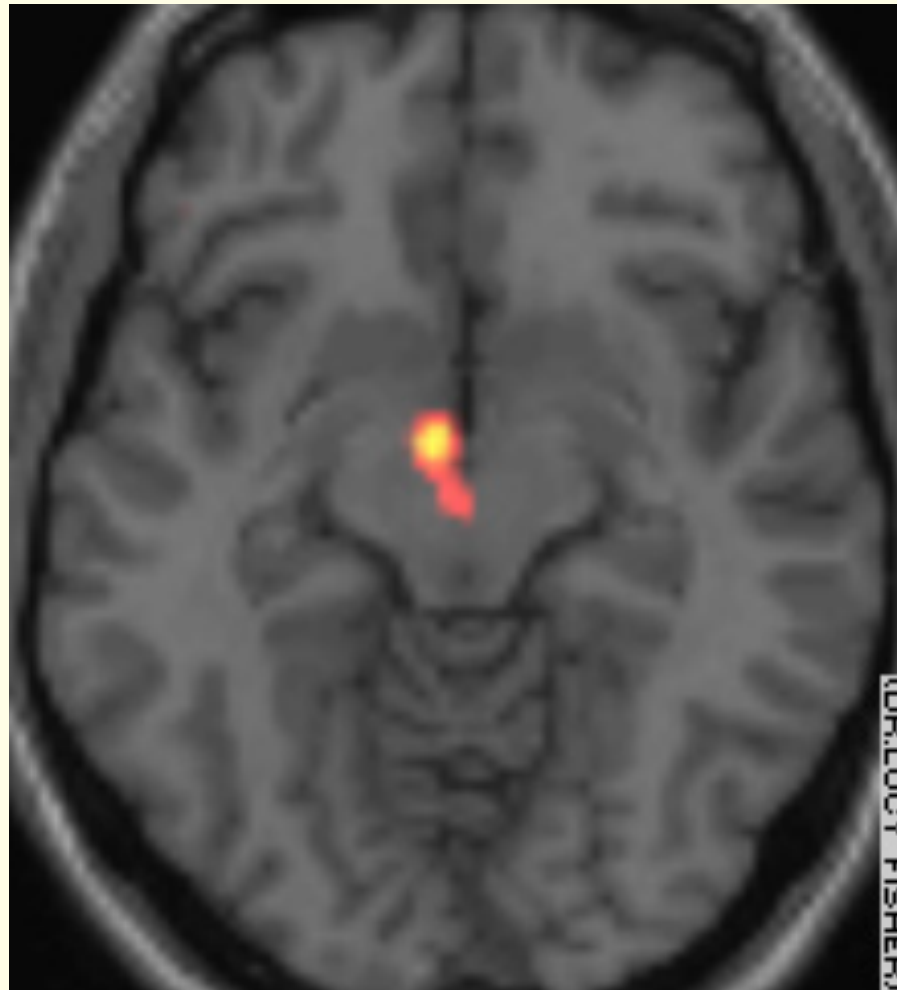
What Was Happening in Your Brain?



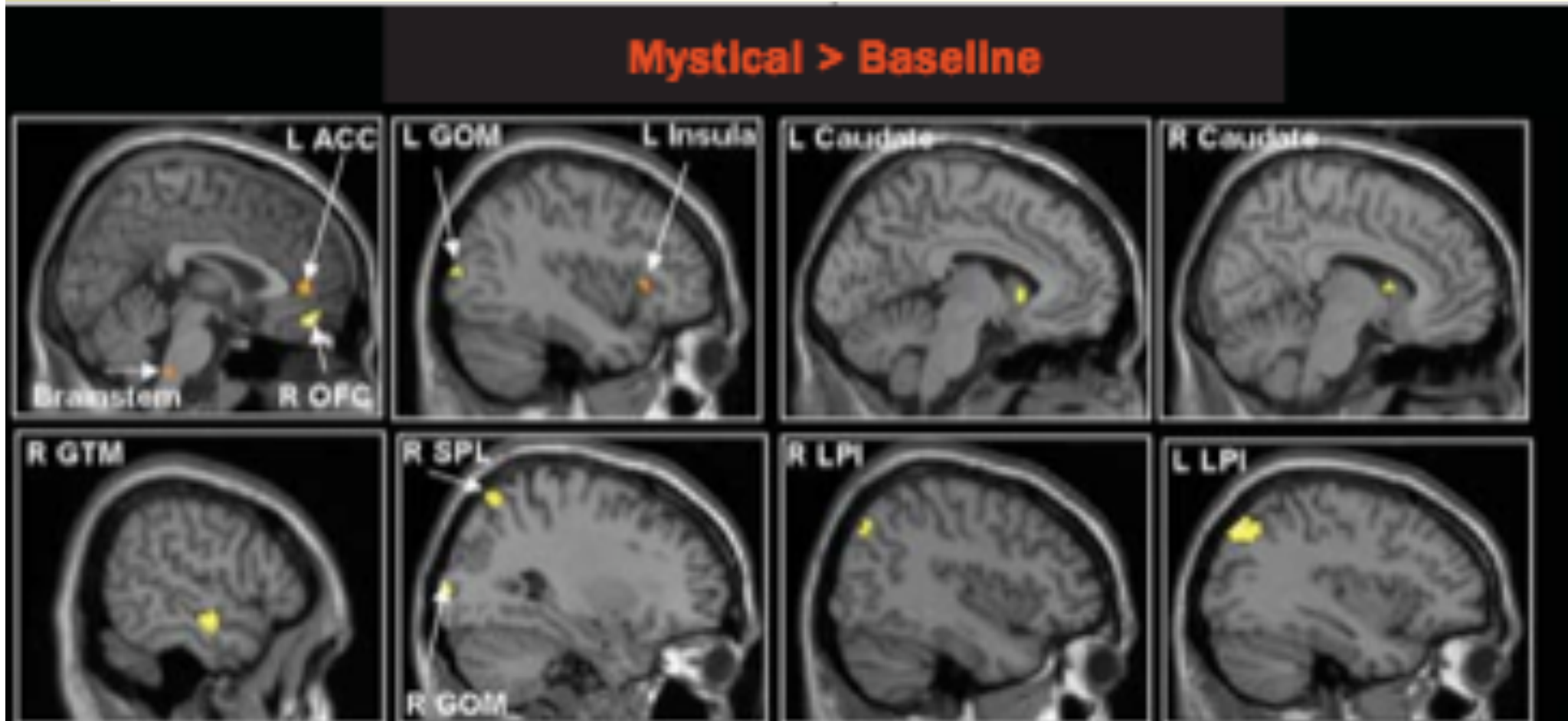


**Mental activity entails
underlying neural activity.**

Rewards of Love



Christian Nuns, Recalling a Profound Spiritual Experience



**Repeated mental activity entails
repeated neural activity.**

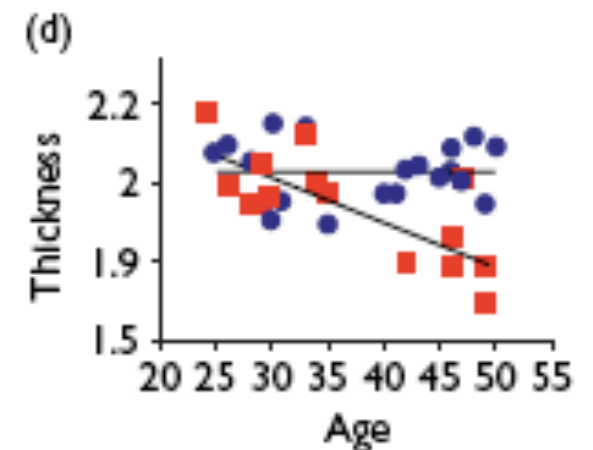
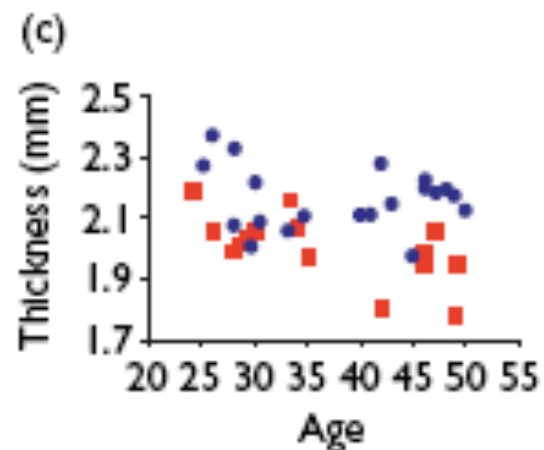
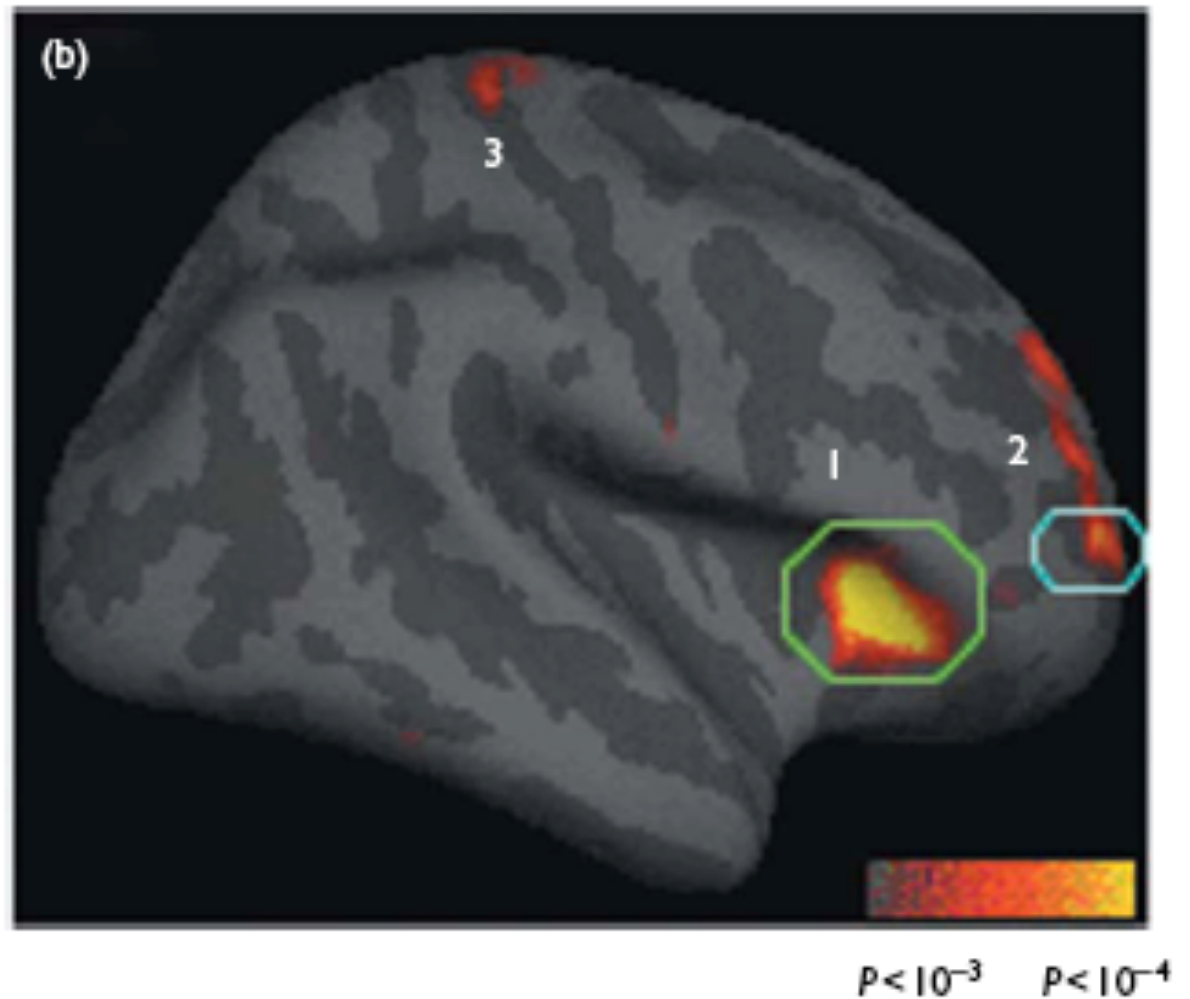
**Repeated neural activity
builds neural structure.**

A microscopic image of neurons, showing a central neuron with a glowing green nucleus and numerous yellow, thread-like axons extending across the field of view. The background is dark, and the overall color palette is dominated by yellow and green.

Neurons that fire together,

wire together.

Lazar, et al. 2005.
Meditation
experience is
associated
with increased
cortical thickness.
Neuroreport, 16,
1893-1897.





We can use the mind

To change the brain

To change the mind for the better

To benefit ourselves and other beings.



Self-Compassion

Self-Compassion

- Compassion is the wish that a being not suffer, combined with sympathetic concern. Self-compassion simply applies that to oneself. It is not self-pity, complaining, or wallowing in pain.
- Studies show that self-compassion buffers stress and increases resilience and self-worth.
- Self-compassion is hard for many people, due to feelings of unworthiness, self-criticism, or shame. To encourage the neural substrates of self-compassion:
 - Get the sense of being cared about by someone else.
 - Bring to mind someone you naturally feel compassion for
 - Then shift the compassion to yourself, perhaps with phrases like: “May I not suffer. May the pain of this moment pass.”

“Anthem”

*Ring the bells that still can ring
Forget your perfect offering
There is a crack in everything
That's how the light gets in
That's how the light gets in*

Leonard Cohen

*The good life, as I conceive it, is a happy life.
I do not mean that if you are good you will be happy;
I mean that if you are happy you will be good.*

Bertrand Russell



Positive Neuroplasticity

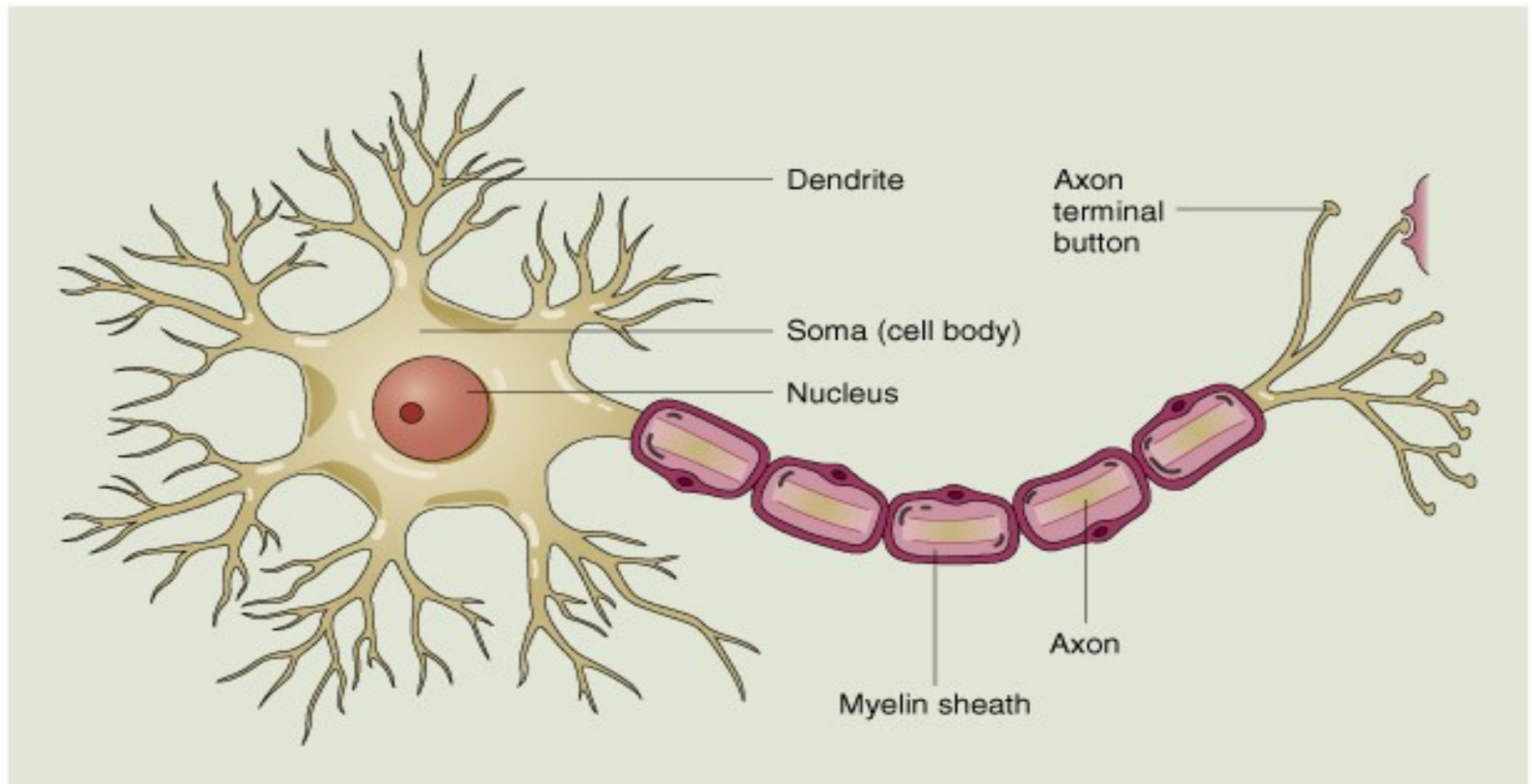


We ask, “What is a thought?”

*We don’t know,
yet we are thinking continually.*

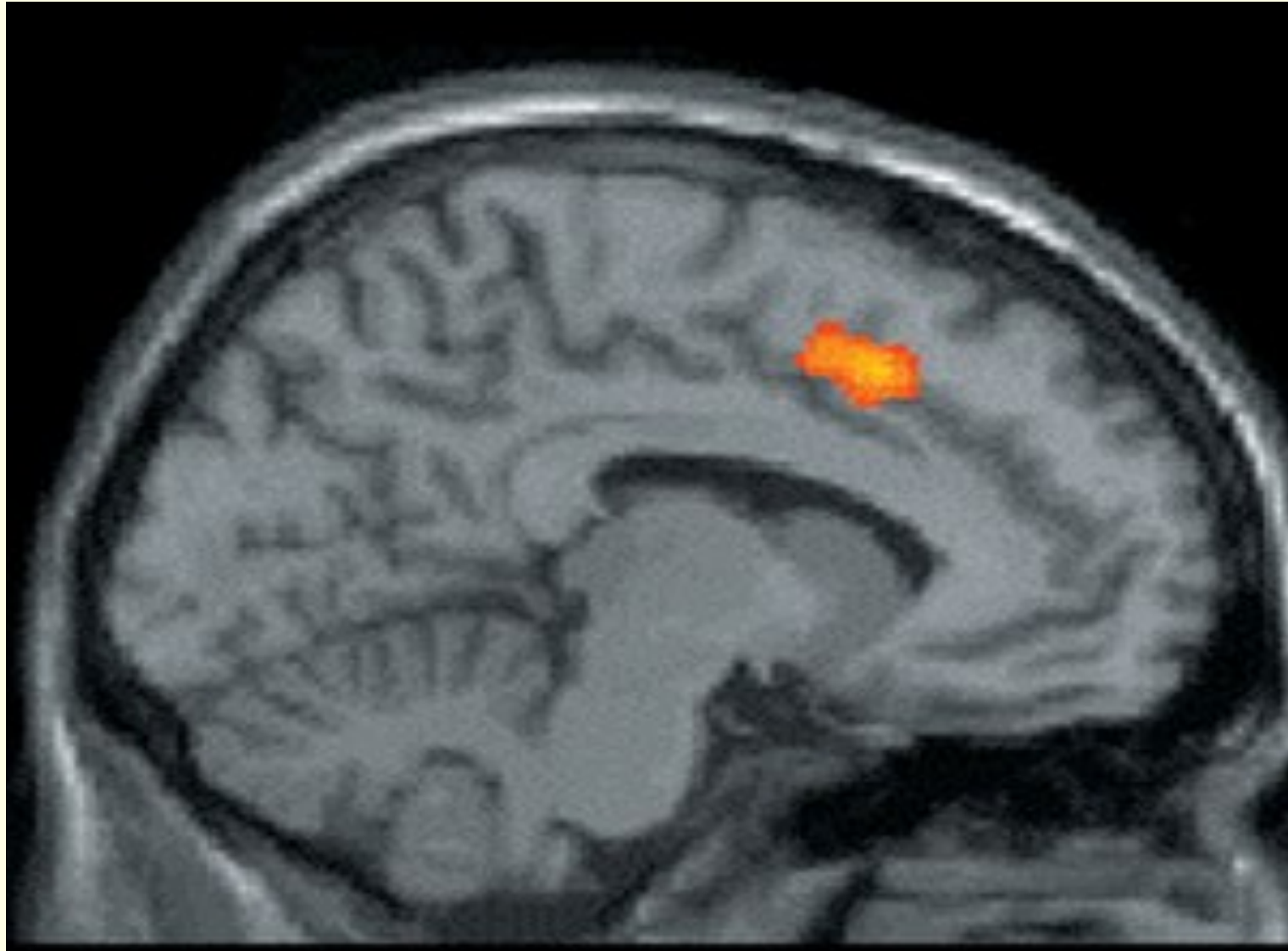
Venerable Tenzin Palmo

A Neuron



© 2000 John Wiley & Sons, Inc.

Ardent, Diligent, Resolute, and Mindful



The background of the slide is a complex network of glowing yellow neurons. A single neuron in the center is highlighted with a bright green nucleus. The text is overlaid on this image.

Neurons that fire together,

wire together.


The Neuropsychology of Learning

Learning – changing neural structure and function – has two stages:

From short-term memory buffers to long-term storage

From state to trait

From activation to installation.



**Inner strengths are grown from
experiences of them – activated
states – that are installed as traits.**

**You become more compassionate
by installing experiences of compassion.**

**You become more grateful
by installing experiences of gratitude.**

**You become more mindful
by installing experiences of mindfulness.**



Installation



Installation

Installation



Installation


Installation

Installation



**Most experiences of inner strengths
are enjoyable.**


**They feel good because they are good
for us and others.**




Feeling strong




The Missing Link




**Without installation,
there is no learning,
no change in the brain.**



**We're good at activation
but bad at installation.**




**This is the fundamental weakness in
most patient education, human
resources training, psychotherapy,
coaching, and mindfulness training.**



*The same research that proves therapy works
shows no improvement in outcomes
over the last 30 or so years.*

Scott Miller



**Meanwhile your painful,
harmful experiences
are being rapidly converted
into neural structure.**



The Negativity Bias

Unpleasant Experiences In Context

- Life contains unavoidable unpleasant experiences. Resisting them just adds to the stress, upset, etc.
- Some inner strengths come only from unpleasant experiences, e.g., knowing you'll do the hard thing.
- But unpleasant experiences have inherent costs, in their discomfort and stress.
- Many inner strengths could have been developed without the costs of unpleasant experiences.
- Most unpleasant experiences are pain with no gain.

The Brain's Negativity Bias

As our ancestors evolved, avoiding “sticks” was more important than getting “carrots.”

1. So we scan for bad news,
2. Over-focus on it,
3. Over-react to it,
4. Install it fast in implicit memory,
5. Sensitize the brain to the negative, and
6. Create vicious cycles with others.

Vicious Cycles in the Brain

- Amygdala initiates stress response (“alarm bell”)
- Hippocampus:
 - Forms and retrieves contextual memories
 - Inhibits the amygdala
 - Inhibits cortisol production
- Cortisol:
 - Stimulates and sensitizes the amygdala
 - Inhibits and can shrink the hippocampus
- Consequently, chronic negative experiences:
 - Sensitize the amygdala alarm bell
 - Weaken the hippocampus: this reduces memory capacities and the inhibition of amygdala and cortisol production
 - Thus creating vicious cycles in the NS, behavior, and mind

The Brain's Negativity Bias

As our ancestors evolved, avoiding “sticks” was more important than getting “carrots.”

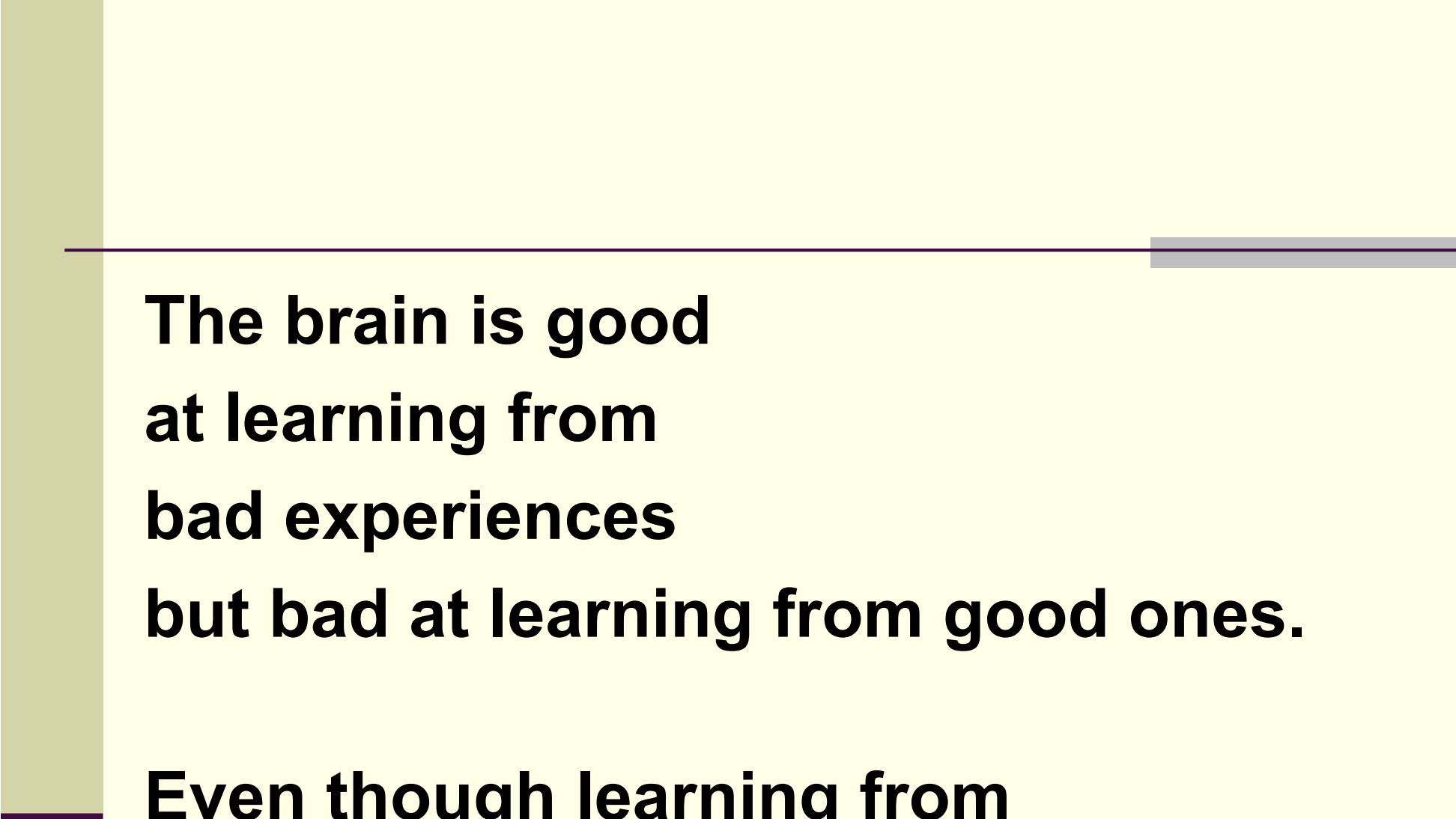
1. So we scan for bad news,
2. Over-focus on it,
3. Over-react to it,
4. Install it fast in implicit memory,
5. Sensitize the brain to the negative, and
6. Create vicious cycles with others.

Velcro for Bad, Teflon for Good

The negativity bias

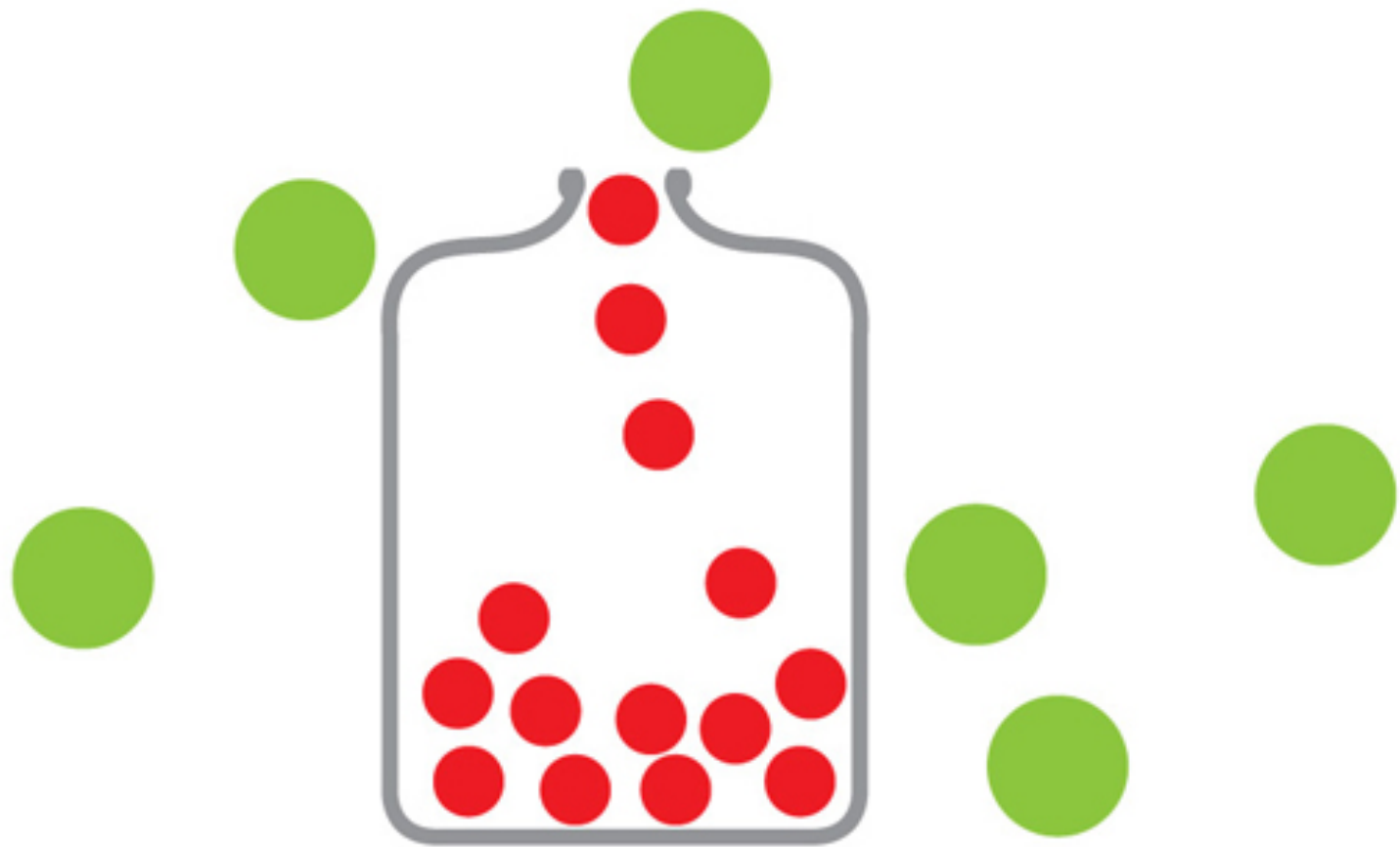
bad experiences

good experiences



**The brain is good
at learning from
bad experiences
but bad at learning from good ones.**

**Even though learning from
good experiences
is the primary way
to grow resources in the mind.**



The Negativity Bias

A composite image showing three Stone Age people in a modern city park. In the foreground, a man with long hair and a beard is crouching in a grassy field. Behind him, two other people are sitting on the grass. In the background, there are large green bushes and a dense forest of trees. Behind the trees, several tall, modern city buildings are visible under a clear blue sky. The text "Stone age brains in the 21st century" is overlaid in white serif font on a dark green horizontal band across the middle of the image.

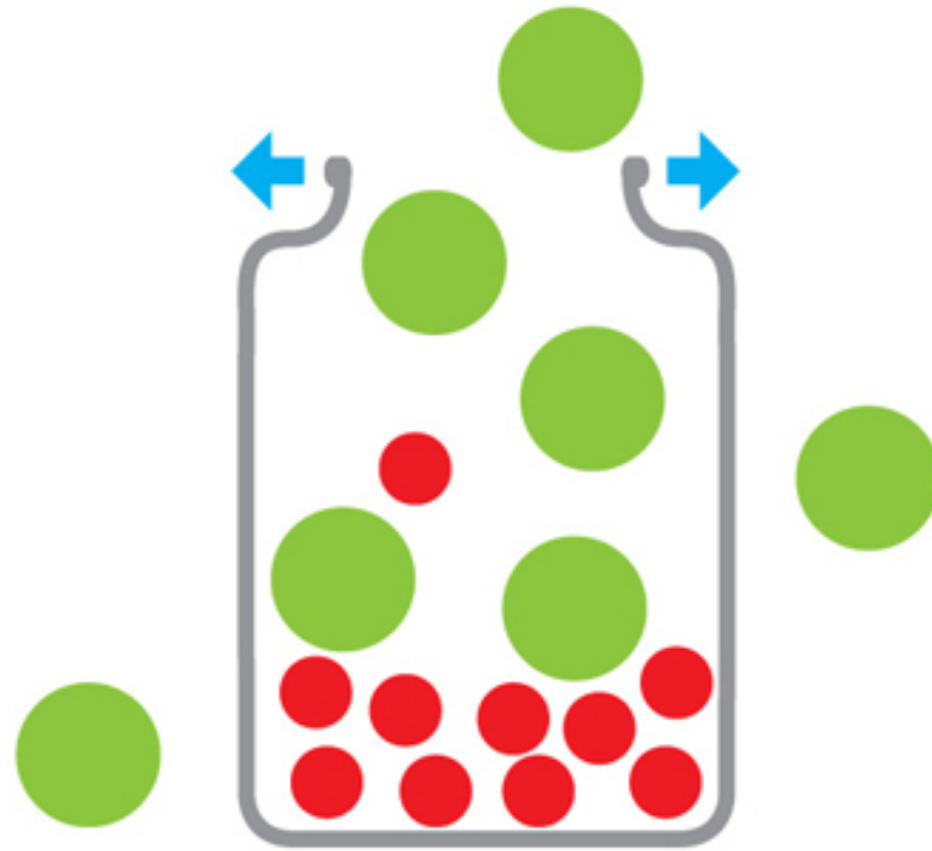
Stone age brains in the 21st century

**Pick a partner and choose an A and a B (A's go first).
Then you'll take turns, with one partner mainly
speaking while the other person listens, exploring
this question:**

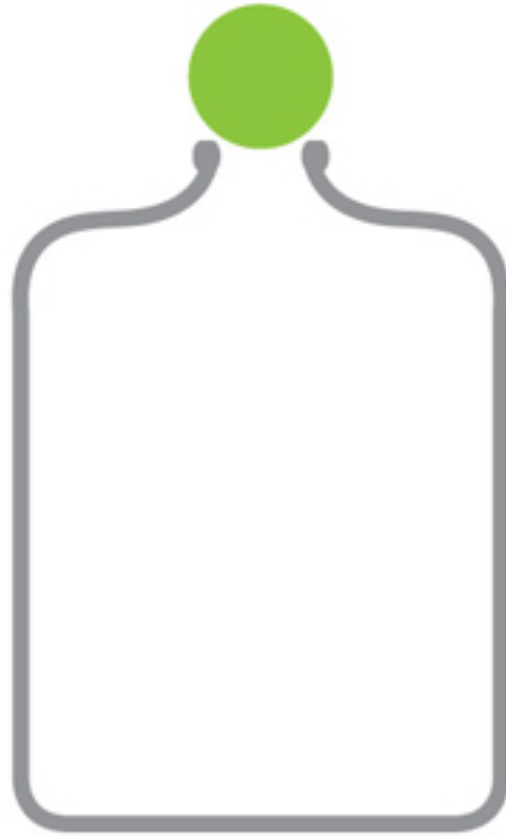
**How does the negativity bias operate in your
own mind, in your own life?**



Taking Charge of Your Brain



Getting the Good Stuff into Your Brain



Have a Good Experience

The Two Ways To Have a Beneficial Experience

Notice one you are already having.

- In the foreground of awareness
- In the background

Create one.

Aspects of Experience

- **Thoughts** – verbal and nonverbal
- **Perceptions** - sensations; relaxation; vitality
- **Emotions** - both feelings and mood
- **Desires** – values; aspirations; passions; wants
- **Behaviors** - repertoire; inclinations
- **Awareness** – wakefulness; “field” of experiences

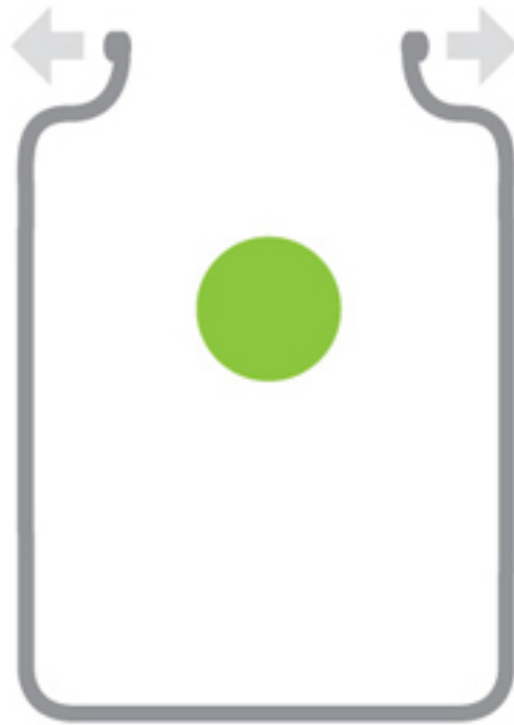
How to Create A Beneficial Experience

Look for good facts in:

- 1. Immediate situation**
- 2. Current or recent events**
- 3. Stable conditions**
- 4. Your character**
- 5. The past**
- 6. The future**
- 7. Bad situations**
- 8. The lives of others**
- 9. Your imagination**
- 10. Care about others**
- 11. Directly evoke a beneficial experience**
- 12. Produce good facts**
- 13. Share about good facts with others**

Turning a Good Fact Into a Good Experience

- Bring awareness to your body.
- Soften and open yourself.
- Be a little active in your mind, recognizing aspects of the good fact that naturally elicit an experience.
- Imagine how another person might naturally feel in response to the good fact.
- Have kindness for yourself, encouraging yourself to have a beneficial experience.



Enrich It

How to Enrich an Experience

- **Duration**
- **Intensity**
- **Multimodality**
- **Novelty**
- **Salience**

Enrich Feeling Protected, Supported

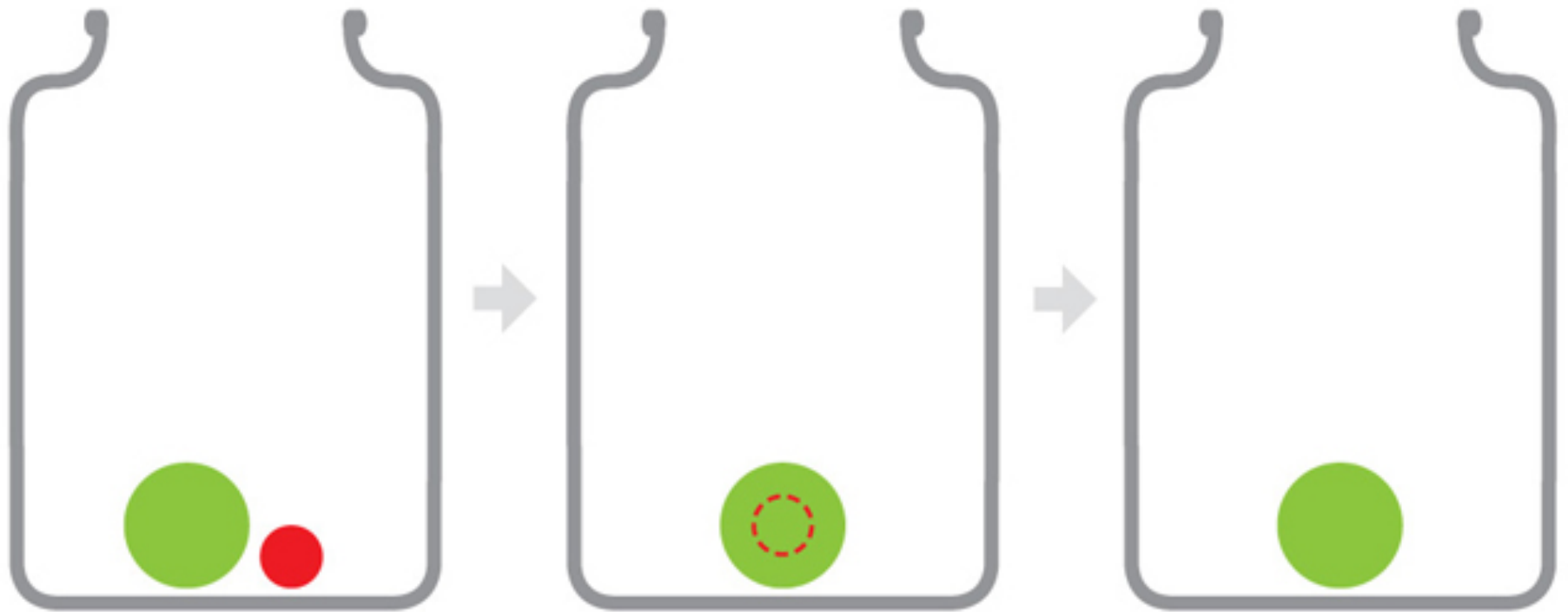
- **Duration**
- **Intensity**
- **Multimodality**
- **Novelty**
- **Salience**



Absorb It

How to Absorb an Experience

- Enriching makes the experience more powerful.
Absorbing makes memory systems more receptive by priming and sensitizing them.
- Intend and sense the experience is sinking into you.
 - Imagery – Water into a sponge; golden dust sifting down; a jewel into the treasure chest of the heart
 - Sensation – Warm soothing balm
- Giving over to the experience; letting it change you
- Letting go of resisting, grasping, clinging: “craving”



Link Positive and Negative Material

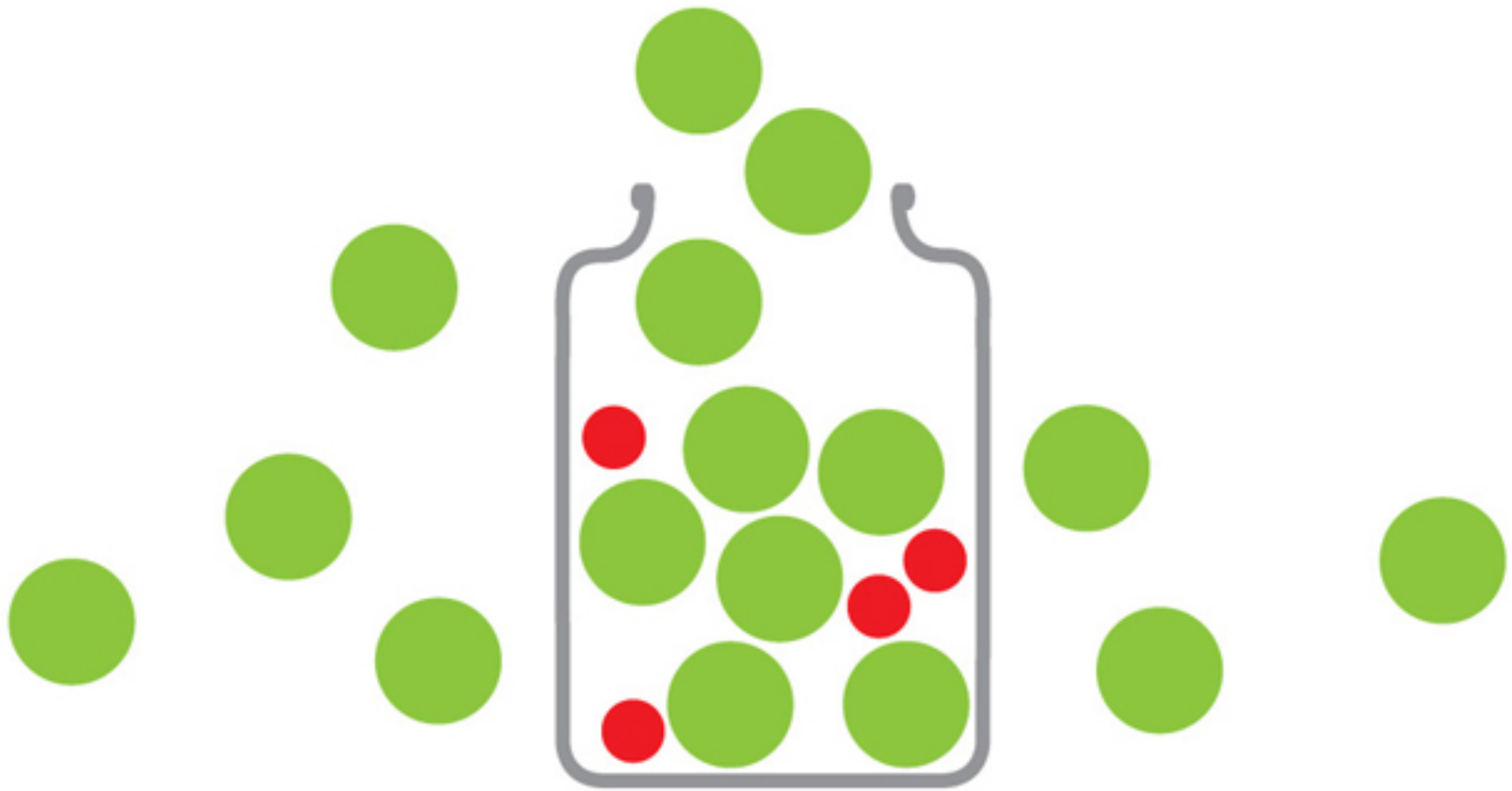
HEAL Yourself

Have a positive experience.

Enrich it.

Absorb it.

Link positive and negative material.



Have It, Enjoy It


Let's Try It

- **Notice** the experience present in awareness that you are basically alright right now.
 - Have the experience.
 - Enrich it.
 - Absorb it.

- **Create** the experience of gratitude.
 - Have the experience.
 - Enrich it.
 - Absorb it.

It's Good to Take in the Good

- Development of specific inner strengths
 - General - resilience, positive mood, feeling loved
 - Key resources – For challenges, deficits, wounds
- Implicit benefits:
 - Shows that there is still good in the world
 - Being active rather than passive
 - Treating yourself kindly, like you matter
 - Rights an unfair imbalance, given the negativity bias
 - Training of attention and executive functions
- Sensitizes brain to positive: like Velcro for good



*Keep a green bough in your heart,
and a singing bird will come.*

Lao Tsu

In the Garden of the Mind

1. Be with what is there.
2. Decrease what's harmful.
3. Increase what's beneficial.

Witness. Pull weeds. Plant flowers.

Let be. Let go. Let in.

Mindfulness is present in all three.

“Being with” is primary – but not enough.

We also need “wise effort.”



SPIRIT ROCK MEDITATION CENTER



Join us for

**Cultivating Inner Strength - Monastic
Daylong [Dana - No Fee Day]**

with Ayya Anandabodhi
and Ayya Santacitta

on

Sunday, July 8

from 9:30 am - 5 pm.

(Photo by Ed Ritger)

A Three-Legged Stool

- In the context of wisdom and virtue (*panna* and *sila*), practice is like a stool with three legs:
- ***Metta*** – warmheartedness, kindness, compassion
- ***Sati*** – mindfulness, concentration, seeing clearly
- ***Bhavana*** – cultivation, learning, growth



Know the mind.

Shape the mind.

Free the mind.

Feeling Already Full

- Sensing enoughness for the body
- Feeling buoyed and nurtured by the natural world
- Awareness of phenomena filling the mind
- Feeling filled by each moment's arisings even as they pass away



The Buddha's Drive Theory of Suffering

Reverse Engineering the Brain

What's the state of the brain when a person is:

- In peak states of productivity or “flow?”
- Experiencing inner peace?
- Self-actualizing?
- Enlightened (or close to it)?

A Telling of the Four Noble Truths

There is suffering.

When craving arises, so does suffering.

When craving passes away, so does suffering.

There is a path that embodies and leads to the passing away of this craving and suffering.



What causes craving?

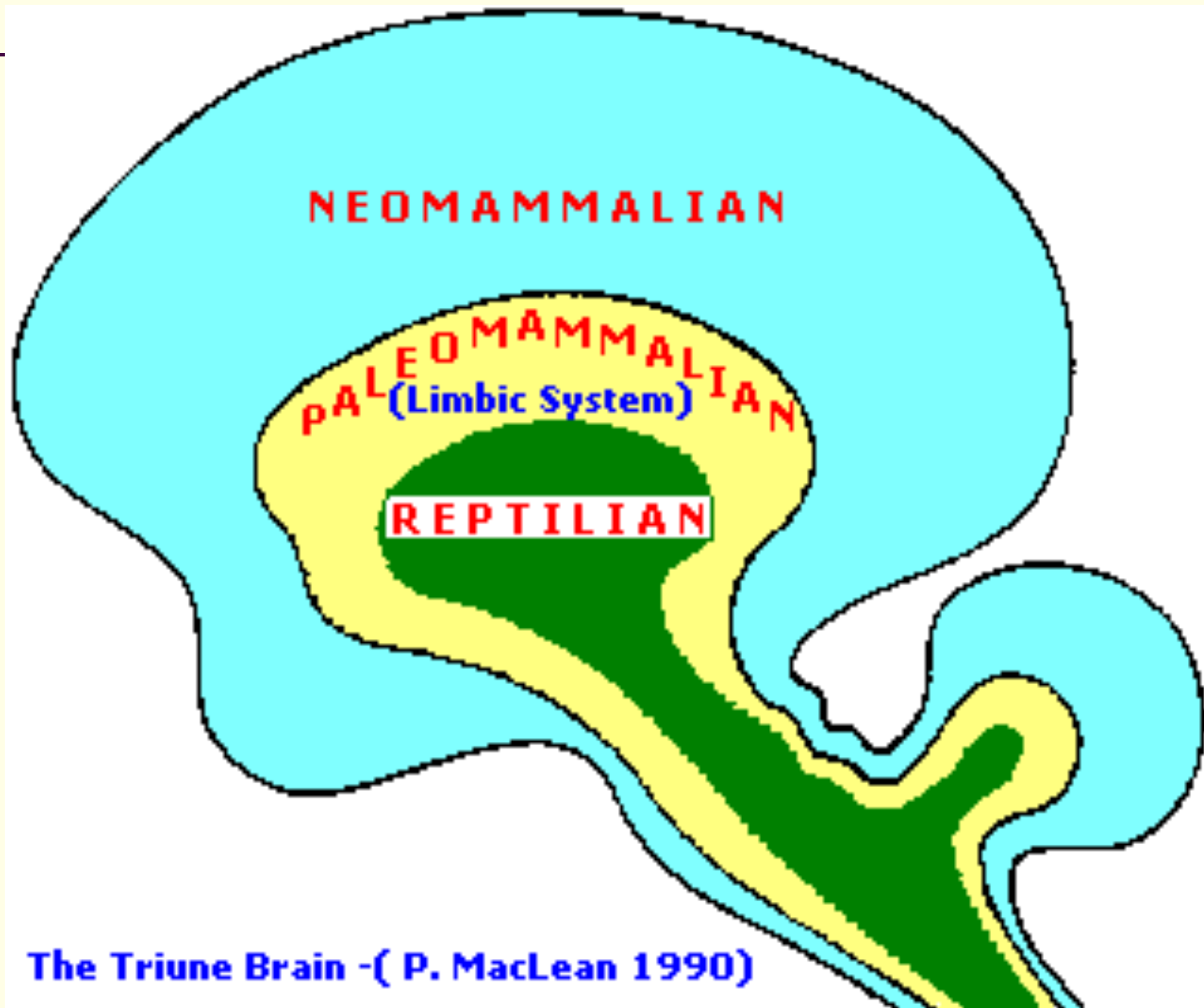


What ends these causes?

Biological Evolution

- 4+ billion years of earth
- 3.5 billion years of life
- 650 million years of multi-celled organisms
- 600 million years of nervous system
- 200 million years of mammals
- 60 million years of primates
- 6 million years ago: ancestor with chimpanzees
- 2.5 million years of tool-making
- 150,000 years of *homo sapiens*

The Evolving Brain



Three Stages of Brain Evolution

■ Reptilian:

- Brainstem, cerebellum, hypothalamus
- Reactive and reflexive
- **Avoid** hazards

■ Mammalian:

- Limbic system, cingulate, early cortex
- Memory, emotion, social behavior
- **Approach** rewards

■ Human:

- Massive cerebral cortex
- Abstract thought, language, cooperative planning, empathy
- **Attach** to “us”



© 2011 Victor Yalom/Psychotherapy.net

"With all due respects, I find your disparaging remarks about the 'reptilian brain' unnecessary"

Meeting Three Core Needs

Need

Signal

Strategy

Safety

Unpleasant

Avoiding

Satisfaction

Pleasant

Approaching

Connection

Heartfelt

Attaching

Craving Arising . . .

When there is a presumed or felt deficit or disturbance of safety, satisfaction, or connection:

The body fires up into the stress response; outputs exceed inputs; long-term building is deferred.

The mind fires up into:

- **Fear** (Avoiding)
- **Frustration** (Approaching)
- **Heartache** (Attaching)

The brain in allostatic, **Reactive**, craving mode¹

Reactive Dysfunctions in Each System

- **Avoid** - Anxiety disorders; PTSD; panic, terror; rage; violence
- **Approach** - Addiction; over-drinking, -eating, -gambling; compulsion; hoarding; driving for goals at great cost; spiritual materialism
- **Attach** - Borderline, narcissistic, antisocial PD; symbiosis; *folie a deux*; “looking for love in all the wrong places”

Craving Passing Away . . .

With no presumed or felt deficit or disturbance of safety, satisfaction, and connection:

The body defaults to a sustainable equilibrium of refueling, repairing, and pleasant abiding.

The mind defaults to a sustainable equilibrium of:

- **Peace** (Avoiding)
- **Contentment** (Approaching)
- **Love** (Attaching)

The brain in homeostatic, **Responsive**,
minimal craving mode

Behind the Obscurations

Sam sees *“peeping among the cloud-wrack . . . a white star twinkle for a while.*

The beauty of it smote his heart, as he looked up out of the forsaken land, and hope returned to him.

For like a shaft, clear and cold, the thought pierced him that in the end the Shadow was only a small and passing thing: there was light and high beauty forever beyond its reach.”

Tolkein, *The Lord of the Rings*

Can You Stay in the Green Zone When:

Things are unpleasant?

Things are pleasant?

Things are heartfelt?




The First and Second Dart

- The Buddha called unavoidable discomfort – including disease, old age, death, and sorrow at harms befalling others – as the “first dart.”
- Then we add our reactions to that first dart. For example, one could react to a physical pain with anxiety, then anger at oneself for feeling anxious, then sadness linked to not being comforted as a child.
- Sometimes we react with suffering when there is no first dart at all, simply a condition that there is no need to get upset about.
- And sometimes we react with suffering to positive events, such as a compliment or an opportunity.
- The Buddha called these reactions “second darts” - the ones we throw ourselves.

Liking and Wanting

- Distinct neural systems for liking and wanting
- In the brain: feeling/hedonic tone --> enjoying (liking)
--> wanting --> pursuing
 - Wanting without liking is hell.
 - Liking without wanting is heaven.
- The distinction between *chandha* (wholesome wishes and aspirations) and *tanha* (craving)
- But beware: the brain usually wants (craves) and pursues (clings to) what it likes.

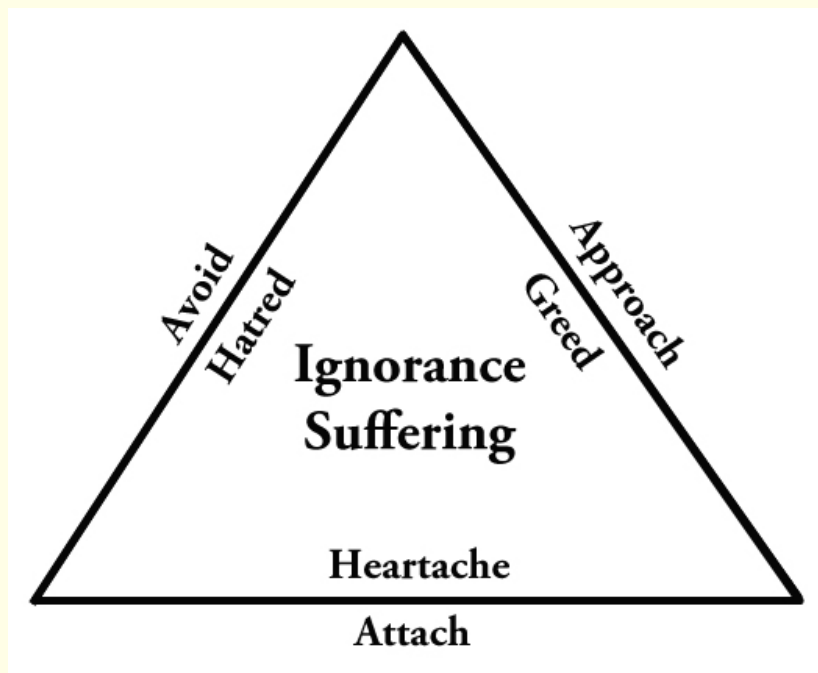


*Human suffering
comes from
seeking happiness*

where it cannot be found.

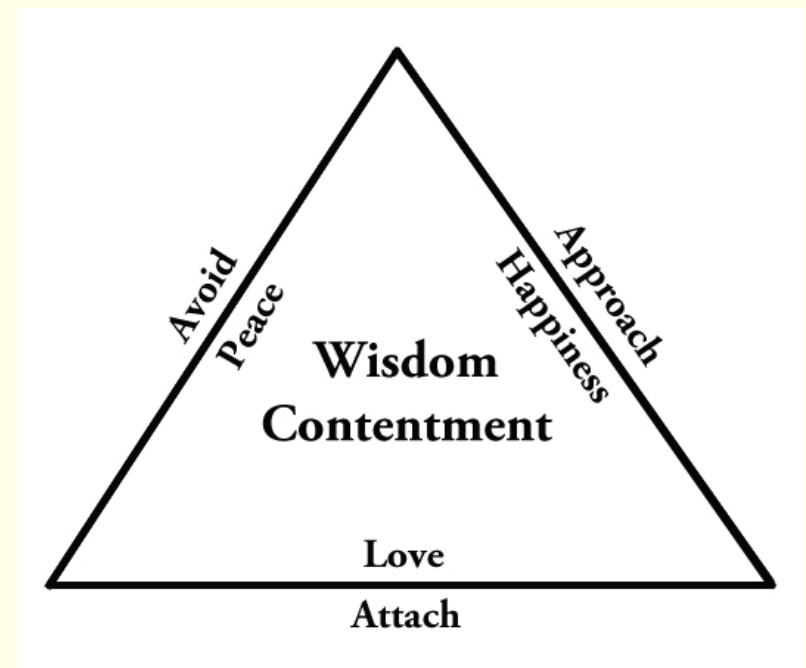
Kagyu Samye Ling Guidebook

Choices . . .



Reactive Mode

Or?



Responsive Mode

Coming Home, Staying Home

Positive experiences of core needs met – the felt sense of safety, satisfaction, and connection: **peace, **contentment**, and **love** – activate the Responsive mode.**

Activated Responsive states can become installed Responsive traits. Responsive traits foster Responsive states.

Responsive states and traits enable us to stay Responsive with challenges.



Peace

Contentment

Love

Cultivation Undoes Craving

**We rest the mind upon beneficial states
so that the brain may gradually take their shape.**

**This disentangles us from craving
as we increasingly rest
in a peace, contentment, and love
that is independent of external conditions.**

**With time, even the practice of cultivation falls away –
like a raft that is no longer needed
once we reach the farther shore.**



Key Resource Experiences

Our Three Fundamental Needs

Safety

Satisfaction

Connection

Mental Resources for Challenges

Safety – Grit, protection, relaxation,
feeling alright right now, peace

Satisfaction – Gratitude, gladness,
accomplishment, contentment

Connection – Belonging, appreciation,
friendship, compassion, love

RESOURCES FOR AVOIDING HARMS

Challenge

Weakness

Helplessness

Freezing,
immobilization

Inflated threats

Alarm

Tension

Worry, fear

Irritation, anger

Resource

Strength

Agency

Action, venting

Accurate appraisal

Protection, calming

Relaxation

Feeling alright now,
making a plan

Big picture, peace

RESOURCES FOR APPROACHING REWARDS

Challenge

What I don't have

Scarcity

Disappointed, sad

Frustration, failure

Bored, numb

Grief

Giving up

Drivenness

Resource

What I do have

Enoughness,
fullness

Gratitude, gladness

Accomplishment

Pleasure, excitement

Loved and loving

Aspire, lived by good

Already satisfied

RESOURCES FOR ATTACHING TO OTHERS

Challenge

Left out, excluded
Inadequacy, shame
Ignored, unseen
Lonely

Resentment

Envy, jealousy

Feeling stifled

Resource

Belonging, wanted
Appreciated, respected
Receiving empathy
Friendship, caring
to others and oneself
Recognize it hurts you
Self-compassion, take
action, good will
Skillful assertiveness

Pet the Lizard



Feed the Mouse



Hug the Monkey



A decorative vertical bar in a light olive green color runs down the left side of the slide. A thin, dark purple horizontal line spans across the top of the slide, ending at a small grey rectangular block on the right side.

Peace

Contentment

Love



Flowers Pulling Weeds

The Fourth Step of TG

- When you are having a positive experience:
 - Sense the current positive experience sinking down into old pain, and soothing and replacing it.
- When you are having a negative experience:
 - Bring to mind a positive experience that is its antidote.
- In both cases, have the positive experience be big and strong, in the forefront of awareness, while the negative experience is small and in the background.
- You are not resisting negative experiences or getting attached to positive ones. You are being kind to yourself and cultivating positive resources in your mind.

The Tip of the Root

- For the fourth step of TIG, try to get at the youngest, most vulnerable layer of painful material.
- The “tip of the root” is commonly in childhood. In general, the brain is most responsive to negative experiences in early childhood.
- Prerequisites
 - Understanding the need to get at younger layers
 - Compassion and support for the inner child
 - Capacity to “presence” young material without flooding

Psychological Antidotes

Avoiding Harms

- Strength, efficacy --> Weakness, helplessness, pessimism
- Safety, security --> Alarm, anxiety
- Compassion for oneself and others --> Resentment, anger

Approaching Rewards

- Satisfaction, fulfillment --> Frustration, disappointment
- Gladness, gratitude --> Sadness, discontentment, “blues”

Attaching to Others

- Attunement, inclusion --> Not seen, rejected, left out
- Recognition, acknowledgement --> Inadequacy, shame
- Friendship, love --> Abandonment, feeling unloved or unlovable

Societal Implications of Positive Neuroplasticity

- For most of the time our human and hominid ancestors have lived, it was not possible to meet the core needs of everyone. But now the resources and know-how exist to do this. How we handle this unprecedented opportunity will be the central theme of this century.
- Improving external conditions is vital – but not enough. Many affluent people dwell in anxiety and anger, frustration and drivenness, and hurt and ill will.
- Repeatedly internalizing Responsive experiences develops a “green brain” that is harder to manipulate with threats and fear, greed and consumerism, and “us” vs. “them” rivalries. A critical mass of “green brains” will bring a tipping point that changes the course of human history.



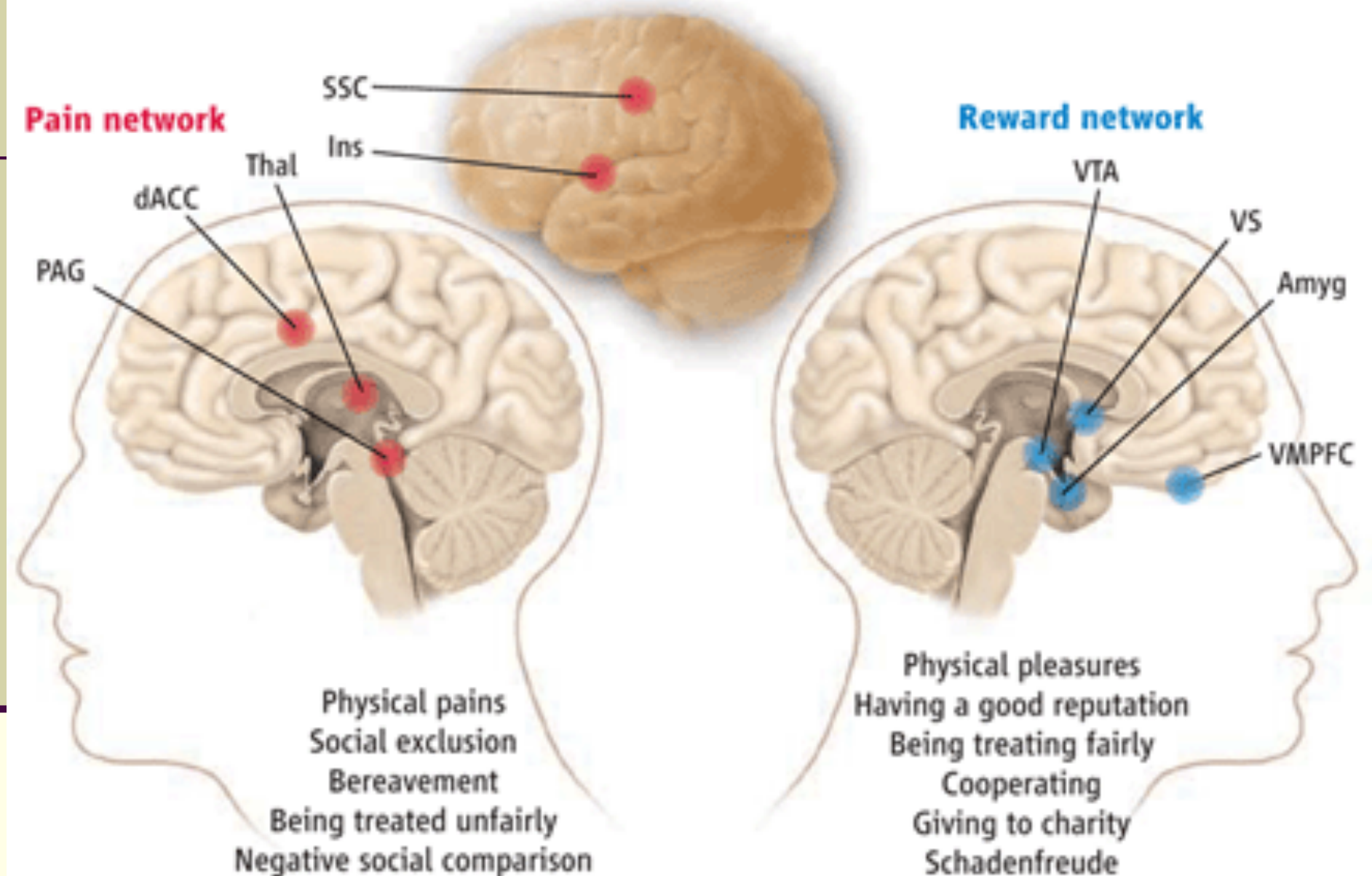
Your Loving Nature

*All sentient beings developed through
natural selection in such a way that
pleasant sensations serve as their guide,
and especially the pleasure
derived from sociability
and from loving our families.*

Charles Darwin

The Social Brain

- Social capabilities have driven recent brain evolution.
- Mammals and birds: bigger brains than reptiles and fish.
- More social primate species have larger cortex.
- Much of the brain's tripling in size is for social functions (e.g., cooperative planning, empathy, language). The growing brain needed a longer childhood, which required greater pair bonding and band cohesion.



Pain network: Dorsal anterior cingulate cortex (dACC), insula (Ins), somatosensory cortex (SSC), thalamus (Thal), and periaqueductal gray (PAG). Reward network: Ventral tegmental area (VTA), ventral striatum (VS), ventromedial prefrontal cortex (VMPFC), and amygdala (Amyg). K. Sutliff, in Lieberman & Eisenberger, 2009, *Science*, 323:890-891


















































Feeding the Hungry Heart

Healthy “Narcissistic Supplies”

- Healthy development requires caregivers to give a child extensive mirroring, attunement, and prizing; healthy adult relationships require much the same.
- These are normal “narcissistic supplies.” Deficits lead to:
 - Feelings of inadequacy, worthlessness, and shame
 - Tendencies toward extremes of clinging or distance
- As an adult, you can take in narcissistic supplies, gradually weaving them into your brain and your being.
- This is not clinging to praise, etc. It is filling the hole in your heart so your happiness is increasingly unconditional - not dependent on external events.

Feeling Prized

- It is natural and important to feel that your person is special to others: appreciated, acknowledged, respected, cherished, prized.
- Bring to mind experiences of:
 - Being praised, complimented, acknowledged
 - A time you knew you were appreciated, perhaps after some contribution or generosity
 - Being wanted by someone; wanted by a group
 - Feeling cherished by someone
- In daily life, look for experiences of being prized, including in small ways, and then savor them so they sink in.

Feeling Like a Good Person

- Everyone has good qualities. No halo is required to have patience, determination, fairness, honesty, kindness, etc.
- Recognizing these qualities in yourself is simply seeing reality with clear eyes, just like recognizing good food in your cupboard or good qualities in another person.
- Methods:
 - Pick a good quality that you know you have.
 - Pay attention to any obstructions to recognizing and appreciating this good quality. Let them be . . . then let them go and return attention to the good quality.
 - Gather evidence for this good quality in you (e.g., examples).
 - Be mindful of what the good quality feels like in your body and mind; let it sink in.
 - Consider how this good quality contributes to yourself and others.
 - Open to a simple gladness for this good quality; let it sink in.



A Strong Heart

Us and Them

- Core evolutionary strategy: within-group cooperation, and between-group aggression.
- Both capacities and tendencies are hard-wired into our brains, ready for activation. And there is individual variation.
- Our biological nature is much more inclined toward cooperative sociability than toward aggression and indifference or cruelty. We are just very reactive to social distinctions and threats.
- That reactivity is intensified and often exploited by economic, cultural, and religious factors.
- Two wolves in your heart:
 - Love sees a vast circle in which all beings are “us.”
 - Hate sees a small circle of “us,” even only the self.

Which one will you feed?

Balancing Autonomy and Intimacy

- Two great themes: independence/dependence, separation/joining, me/we
- They serve each other: autonomy helps you feel safe in the depths of intimacy, and intimacy nurtures the sense of worth and “secure base” that helps you explore life and dare greatly.
- When you feel autonomous and strong inside, you’re more able to manage differences and conflicts with others from the “green zone” without going “red” into fear, anger, and aggression.

Open Strength

- Getting a sense of boundaries around you . . . fences, shields . . . people, world over there, and you over here . . . boundaries you can adjust, letting in what you want and keeping the rest out
- Beings who care about you inside with you . . . supporting you, protecting you
- Feeling strong in your breathing . . . in arms and legs . . . in your whole being . . . determined . . . calling up times you felt strong
- While sustaining the sense of appropriate boundaries and inner strength, opening to others . . . spacious strength that lets others flow through



The Wisdom of Connection

A human being is a part of a whole, called by us “universe,” a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest... a kind of optical delusion of his consciousness.

This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us.

Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

Albert Einstein

What Is Empathy?

- It is sensing, feeling, and understanding how it is for the other person. In effect, you *simulate* his or her inner world.
- It involves (sometimes subtly) all of these elements:
 - Bodily resonance
 - Emotional attunement
 - Conceptual understanding
- Empathy is usually communicated, often tacitly.
- We can give empathy, we can receive it, and we can ask for it.

Neural Substrates of Empathy

- Three *simulating* systems:
 - Actions: “mirror” systems; temporal-parietal
 - Feelings: resonating emotionally; insula
 - Thoughts: “theory of mind”; prefrontal cortex
- These systems interact with each other through association and active inquiry.
- They produce an automatic, continual re-creation of aspects of others’ experience.

Empathy Skills

- Pay attention.
- Be open.
- Read emotion in face and eyes.
- Sense beneath the surface.
- Drop aversion (judgments, distaste, fear, anger, withdrawal).
- Investigate actively.
- Express empathic understanding:
 - Reflect the content
 - Resonate with the tone and implicit material
 - Questions are fine
 - Offer respect and wise speech throughout

Reflections about Empathy

- You're more likely to get empathy if you're:
 - Open, present
 - Honest, real, authentic
 - Reasonably clear
 - Responsible for your own experience
 - Taking it in when you feel felt

- Empathy can be negotiated:
 - Name it as a topic in the relationship
 - Follow NVC format: "When X happens, I feel Y, because I need Z. So I request _____."
 - Stay with it.

From the Buddhist Lovingkindness Sutta

Wishing: In gladness and in safety, may all beings be at ease.

Omitting none, whether they are weak or strong, the great or the mighty, medium, short, or small, the seen and the unseen, those living near and far away, those born and to-be-born: May all beings be at ease.


Let none through anger or ill-will wish harm upon another. Even as a mother protects with her life her child, her only child, so with a boundless heart should one cherish all living beings; radiating kindness over the entire world: spreading upwards to the skies, and downwards to the depths, outwards and unbounded, freed from hatred and ill-will.

One should sustain this recollection.

This is said to be the sublime abiding.

Lovingkindness Practice

- Types of wishes
 - Safety
 - Health
 - Happiness
 - Ease
- Types of beings
 - Self
 - Benefactor
 - Friend
 - Neutral
 - Difficult
- Continually “omitting none” in all directions




*If we could read the secret history
of our enemies,
we should find in each [person's] life
sorrow and suffering enough
to disarm any hostility.*

Henry Wadsworth Longfellow

Feeding the Wolf of Love

- Bring to mind the sense of someone who cares about you.
- Don't over-identify with "us."
- Release aversion to others.
- Focus on similarities between "us" and "them."
- Recognize and have compassion for the suffering of "them."
- Consider "them" as young children.
- Recognize good things about "them."
- Keep extending out the sense of "us" to include everyone.
- Self-generate feelings of compassion, kindness, and love.



So that all cubs are our own . . .

All beings are our clan . . .

All life, our relatives . . .

The whole earth, our home . . .







Steadying the Mind

Basics of Meditation

- Relax; posture that is comfortable and alert
- Simple good will toward yourself
- Awareness of your body
- Focus on something to steady your attention
- Accepting whatever passes through awareness
- Gently settling into peaceful well-being

7 Neural Factors of Steady Presence

- **Setting an intention** - “top-down” frontal, “bottom-up” limbic
- **Relaxing the body** - parasympathetic nervous system
- **Feeling cared about** - social engagement system
- **Feeling safer** - inhibits amygdala/ hippocampus alarms
- **Encouraging positive emotion** - dopamine, norepinephrine
- **Panoramic view** - lateral networks
- **Absorbing the benefits** - positive implicit memories



Being and Doing

Dual Modes

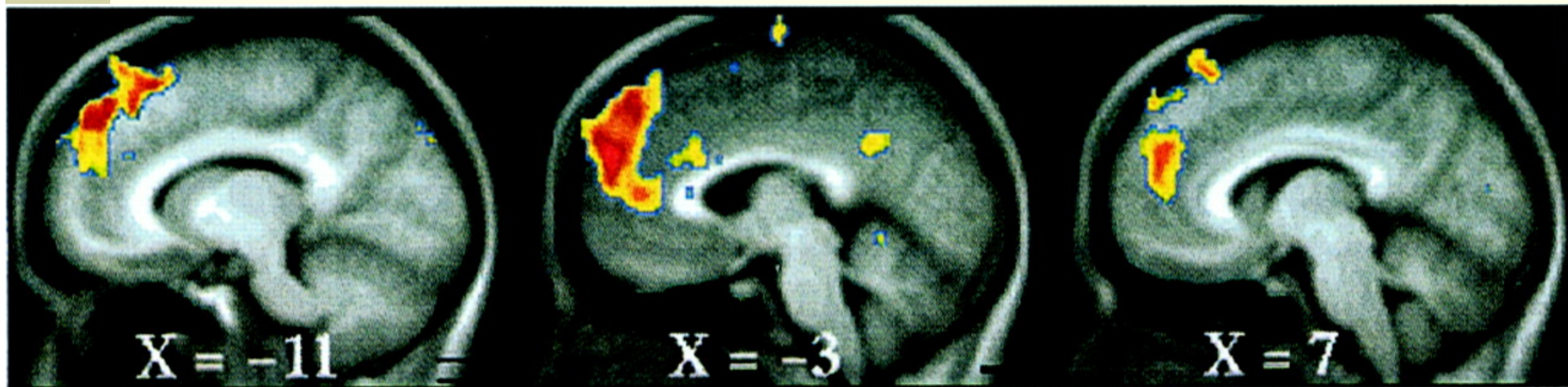
“Doing”

Mainly representational
Much verbal activity
Abstract
Future- or past-focused
Goal-directed
Sense of craving
Personal, self-oriented perspective
Focal view
Firm beliefs
Evaluative
Lost in thought, mind wandering
Reverberation and recursion
Tightly connected experiences
Prominent self-as-object
Prominent self-as-subject

“Being”

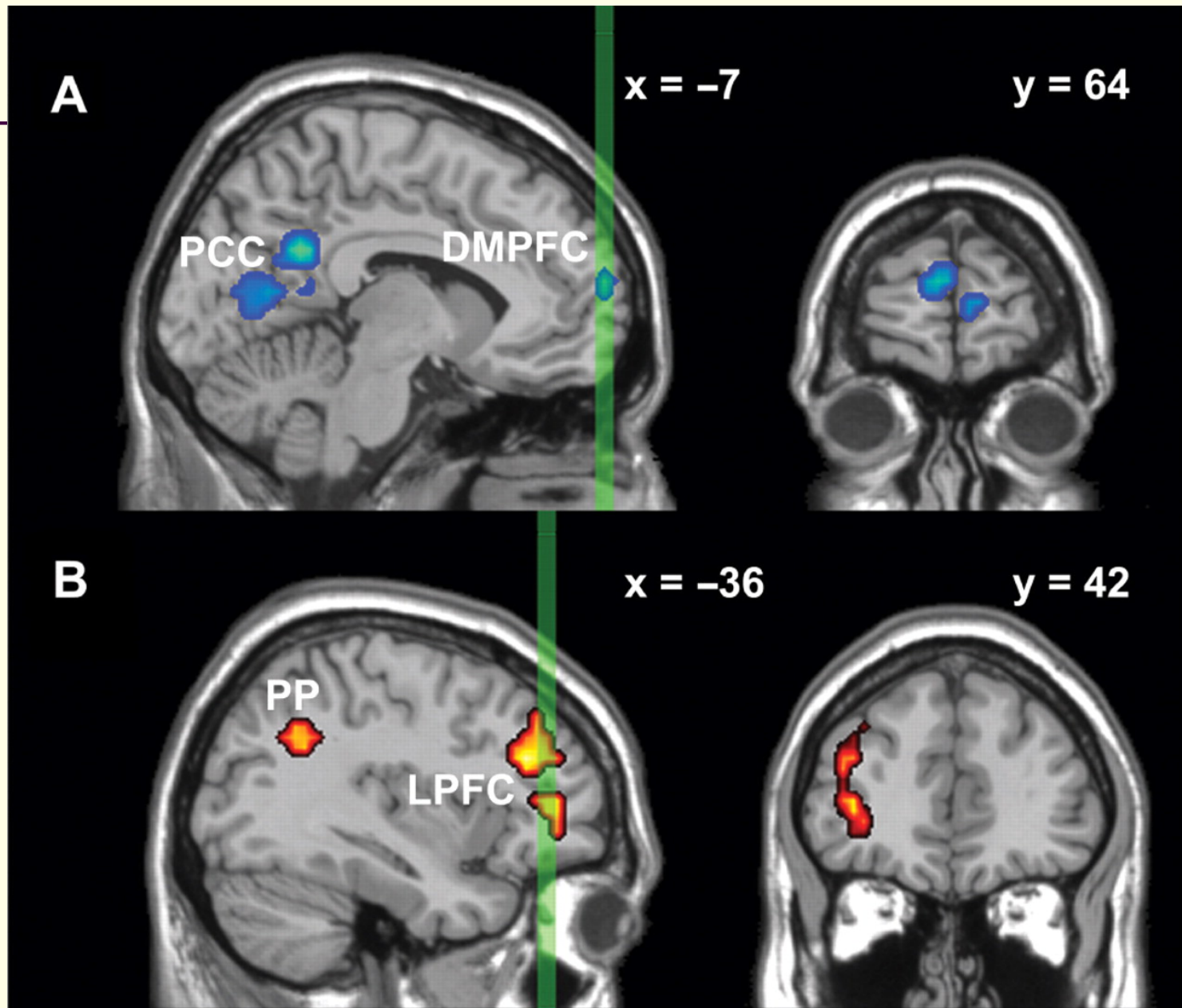
Mainly sensory
Little verbal activity
Concrete
Now-focused
Nothing to do, nowhere to go
Sense of peace
Impersonal, 3rd person perspective
Panoramic view
Uncertainty, not-knowing
Nonjudgmental
Mindful presence
Immediate and transient
Loosely connected experiences
Minimal or no self-as-object
Minimal or no self-as-subject

Increased Medial PFC Activation Related to Self-Referencing Thought



Gusnard D. A., et.al. 2001. *PNAS*, 98:4259-4264

Self-Focused (blue) and Open Awareness (red) Conditions (in the novice, pre MT group)



Dual Modes

“Doing”

Mainly representational
Much verbal activity
Abstract
Future- or past-focused
Goal-directed
Sense of craving
Personal, self-oriented perspective
Focal view
Firm beliefs
Evaluative
Lost in thought, mind wandering
Reverberation and recursion
Tightly connected experiences
Prominent self-as-object
Prominent self-as-subject

“Being”

Mainly sensory
Little verbal activity
Concrete
Now-focused
Nothing to do, nowhere to go
Sense of peace
Impersonal, 3rd person perspective
Panoramic view
Uncertainty, not-knowing
Nonjudgmental
Mindful presence
Immediate and transient
Loosely connected experiences
Minimal or no self-as-object
Minimal or no self-as-subject

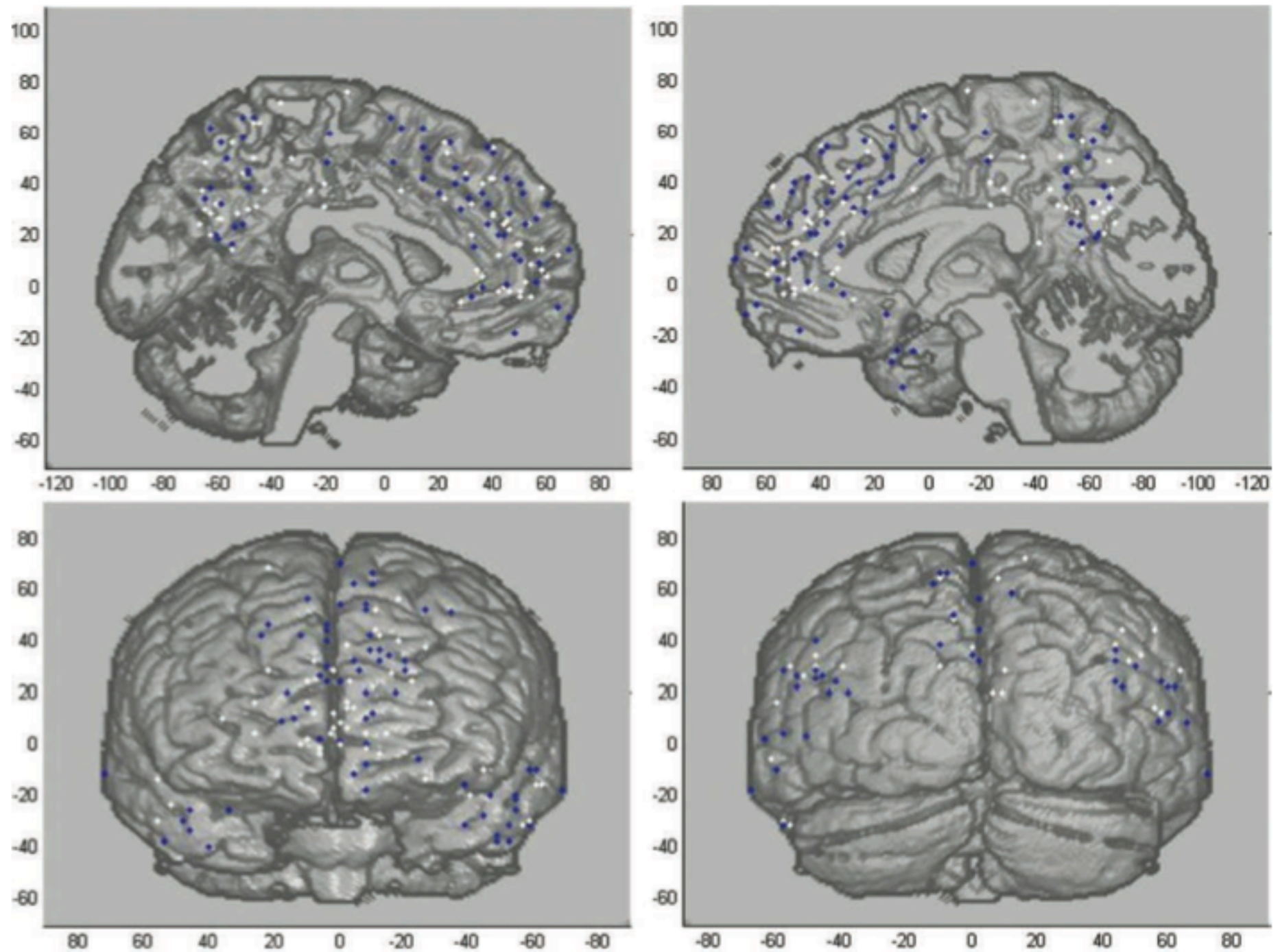
“Bahiya, you should train yourself thus.”

In reference to the seen, there will be only the seen. To the heard, only the heard. To the sensed, only the sensed. To the cognized, only the cognized.

When for you there will be only the seen in reference to the seen, only the heard in the heard, only the sensed in the sensed, only the cognized in the cognized, then, Bahiya, there's no you in that.

When there's no you in that, there's no you there. When there's no you there, you are neither here nor yonder nor between the two.

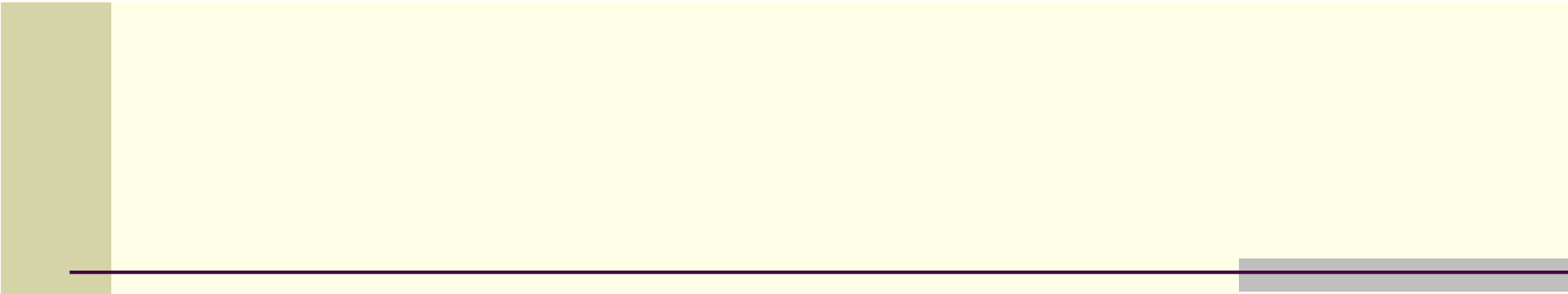
This, just this, is the end of all suffering.



Legrand & Ruby, 2009. What is self-specific? [White = self; blue = other]

Self Is Like a Unicorn

- Self-related patterns of information and neural activity are as real as those that underlie the smell of roses.
- But that which they point to – a unified, enduring, independent “I” – just doesn’t exist.
- Just because there is a sense of self does not mean that there is a self. The brain strings together heterogenous moments of self-ing and subjectivity into an illusion of homogenous coherence and continuity.
- Real representations in the brain of a horse point to something that is also real. But the real representations of a unicorn in the brain point to something that is not real.
- The real representations of the self in the brain point to another mythical creature: the apparent self.^{r76}



No self,

No problem

Ways to Activate “Being” Mode

- Relax
- Focus on bare sensations and perceptions
- Sense the body as a whole
- Take a panoramic, “bird’s-eye” view
- Engage “don’t-know mind”; release judgments
- Don’t try to connect mental contents together
- Let experience flow, staying here now
- Relax the sense of “I, me, and mine”

Whole Body Awareness

- Sense the breath in one area (e.g., chest, upper lip)
- Sense the breath as a whole: one gestalt, percept
- Sense the body as a whole, a whole body breathing
- Sense experience as a whole: sensations, sounds, thoughts . . . all arising together as one unified thing
- It's natural for this sense of the whole to be present for a second or two, then crumble; just open up to it again and again.



Opening into Allness


The Present Moment

- **Now** is the great mystery: infinitely thin temporally, yet containing everything, including the causes from the past that condition the next moment of the future.
- Imagine super-slow motion mindfulness of the emergent edge of Now, coming into being as it passes away.
- In your brain, the alerting aspects of attention track the leading edge of the “windshield” of consciousness.
- These alerting networks entwine with allocentric networks that support the sense of oneness with all things.

Receiving This Moment

Things are happening . . .
No need to understand them,
connect them,
know what they are,
control them . . .
Whoosh, they're racing by.

Just sitting . . .
Or standing or walking . . .
No gaining idea . . .
Living on the edge of now.



*Enlightenment is
to forget this moment
and grow into the next.*

Suzuki Roshi

Opening into Mind as a Whole

- Sense the breath in one area. Be aware of multiple sensations as a single experience.
- Gradually expand to include more sensations of breathing as a whole, as a single percept . . .
Abiding as a whole body breathing.
- Include sounds: a single unified experience . . .
Include sights . . . Thoughts and feelings . . .
Including awareness . . . All a single whole . . .
Abiding as mind as a whole.

Egocentric Perspective

- Based on upper processing streams in the brain that involve: upper portions of thalamus that confer “self” salience; rear of the “default network” (e.g., precuneus, posterior cingulate cortex); parietal regions that construct an enduring and unified sense of “my body in space”
- Establishes “where it is related to me”; lower visual field
- Develops earliest in childhood
- “Subjective” – Things exist in relation to me.
- Action-oriented – Focus on reacting to carrots and sticks

Allocentric Perspective

- Based on lower processing streams in the brain that involve: lower regions of the thalamus that confer “world” salience;
- Establishes “what it is independent of me”; upper visual field
- Begins developing around age four
- “Objective” - Things exist in a physical space in which their location is impersonal, not in reference to the viewpoint of an observer.
- This perspective pervades *kensho* and other forms of non-dual awareness. It is strengthened in open awareness meditations that draw heavily on the alerting, lower attentional system.
- Being-oriented

The Egocentric/Allocentric Dance

- Normal egocentric/allocentric fluctuations occur ~ 3-4 times a minute.
- As one perspective increases, the other decreases.
- With “contact,” allocentric processing increases briefly as the new stimulus is considered in its own right
- Then egocentric processing surges forward as one figures out what to do about the “feeling tone” (pleasant, unpleasant, neutral, heartfelt) of the stimulus.

Strengthening Allocentric Processing – 1

- Taking in experiences of the allocentric mode – regarding reality impersonally, panoramic perspective, little sense of “I,” feeling connected – will naturally strengthen its neural substrates.
- Open awareness practices in which there are many moments of new contact would strengthen the “alerting” networks of attention and incline the brain toward allocentric mode.
- Lower regions of the thalamus – with concentrations of GABA neurons – inhibit egocentric processing. GABA is calming; training in tranquility could strengthen these GABA-based nodes and reduce egocentrism.

Strengthening Allocentric Processing – 2

- “Craving” causes egocentric processing (and suffering). Craving itself is caused by a sense of deficit or disturbance in core needs: safety, satisfaction, connection. So repeatedly internalizing the experience of needs being met builds up a sense of fullness and balance, reducing underlying causes of craving and thus egocentric processing.
- We can relate to our mind from an egocentric or allocentric perspective. Suffering comes from parts tussling with other parts within an egocentric frame. So abide as mind as a whole.

Strengthening Allocentric Processing – 3

- Each moment of mind depends on a vast network of causes: the body, nature, human culture, and material reality . . . stretching back through human history, the evolution of life, and w-a-y back to the Big Bang.

This moment of experience is the local expression of this allness – like a small ripple contains within itself something of the whole ocean.

The felt recognition of mind depending upon this allness, being an expression of it, is the epitome of allocentric mode.

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

John Muir

Only Allness

- Much as mind is a whole, the material universe is a whole and can be taken as a whole.
- Going a step further, Allness is everything, including the material universe – from quantum foam to super-clusters of galaxies – as well as life here and everywhere, and one's own mind and that of others.
- Each moment of experience is the local expression of this net of causes: each something embodies everything.
- Allness itself is perfect, never a problem.


To study the Way is to study the self.

To study the self is to forget the self.

*To forget the self is to be
enlightened
illuminated
lived*

by all things.

Dogen



**Coming into presence in this moment, continually
letting go**

**Opening into a growing sense of peace . . .
contentment . . . love . . .**

Disengaging from parts, abiding as mind as a whole

**Recognizing mind as a local rippling of a vast sea of
causes, opening into being the sea of allness**

*Be still
Listen to the stones of the wall
Be silent, they try
To speak your*

*Name.
Listen to the living walls.
Who are you?
Who
Are you? Whose
Silence are you?*

Thomas Merton

*The entire world is in flames,
the entire world is going up in smoke;
the entire world is burning,
the entire world is vibrating.*

*But that which does not vibrate or burn,
which is experienced by the noble ones,
where death has no entry –
in that my mind delights.*

The Buddha



Always Coming Home

The Fruit as the Path

Peace

Contentment

Love



Penetrative insight

joined with calm abiding

utterly eradicates

afflicted states.

Shantideva

Suggested Books

See www.RickHanson.net for other suggestions.

- Austin, J. 2009. *Selfless Insight*. MIT Press.
- Begley, S. 2007. *Train Your Mind, Change Your Brain*. Ballantine.
- Carter, C. 2010. *Raising Happiness*. Ballantine.
- Hanson, R. (with R. Mendius). 2009. *Buddha's Brain: The Practical Neuroscience of Happiness, Love, and Wisdom*. New Harbinger.
- Johnson, S. 2005. *Mind Wide Open*. Scribner.
- Keltner, D. 2009. *Born to Be Good*. Norton.
- Kornfield, J. 2009. *The Wise Heart*. Bantam.
- LeDoux, J. 2003. *Synaptic Self*. Penguin.
- Linden, D. 2008. *The Accidental Mind*. Belknap.
- Sapolsky, R. 2004. *Why Zebras Don't Get Ulcers*. Holt.
- Siegel, D. 2007. *The Mindful Brain*. Norton.
- Thompson, E. 2007. *Mind in Life*. Belknap.

Key Papers - 1

See www.RickHanson.net for other scientific papers.

- Atmanspacher, H. & Graben, P. 2007. Contextual emergence of mental states from neurodynamics. *Chaos & Complexity Letters*, 2:151-168.
- Baumeister, R., Bratlavsky, E., Finkenauer, C. & Vohs, K. 2001. Bad is stronger than good. *Review of General Psychology*, 5:323-370.
- Braver, T. & Cohen, J. 2000. On the control of control: The role of dopamine in regulating prefrontal function and working memory; in *Control of Cognitive Processes: Attention and Performance XVIII*. Monsel, S. & Driver, J. (eds.). MIT Press.
- Carter, O.L., Callistemon, C., Ungerer, Y., Liu, G.B., & Pettigrew, J.D. 2005. Meditation skills of Buddhist monks yield clues to brain's regulation of attention. *Current Biology*. 15:412-413.

Key Papers - 2

- Davidson, R.J. 2004. Well-being and affective style: neural substrates and biobehavioural correlates. *Philosophical Transactions of the Royal Society*. 359:1395-1411.
- Farb, N.A.S., Segal, Z.V., Mayberg, H., Bean, J., McKeon, D., Fatima, Z., and Anderson, A.K. 2007. Attending to the present: Mindfulness meditation reveals distinct neural modes of self-reflection. *SCAN*, 2, 313-322.
- Gillihan, S.J. & Farah, M.J. 2005. Is self special? A critical review of evidence from experimental psychology and cognitive neuroscience. *Psychological Bulletin*, 131:76-97.
- Hagmann, P., Cammoun, L., Gigandet, X., Meuli, R., Honey, C.J., Wedeen, V.J., & Sporns, O. 2008. Mapping the structural core of human cerebral cortex. *PLoS Biology*. 6:1479-1493.
- Hanson, R. 2008. Seven facts about the brain that incline the mind to joy. In *Measuring the immeasurable: The scientific case for spirituality*. Sounds True.

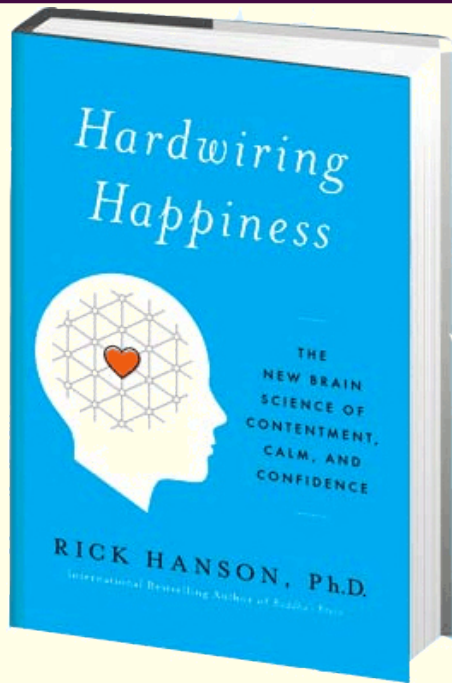
Key Papers - 3

- Lazar, S., Kerr, C., Wasserman, R., Gray, J., Greve, D., Treadway, M., McGarvey, M., Quinn, B., Dusek, J., Benson, H., Rauch, S., Moore, C., & Fischl, B. 2005. Meditation experience is associated with increased cortical thickness. *Neuroreport*. 16:1893-1897.
- Lewis, M.D. & Todd, R.M. 2007. The self-regulating brain: Cortical-subcortical feedback and the development of intelligent action. *Cognitive Development*, 22:406-430.
- Lieberman, M.D. & Eisenberger, N.I. 2009. Pains and pleasures of social life. *Science*. 323:890-891.
- Lutz, A., Greischar, L., Rawlings, N., Ricard, M. and Davidson, R. 2004. Long-term meditators self-induce high-amplitude gamma synchrony during mental practice. *PNAS*. 101:16369-16373.
- Lutz, A., Slager, H.A., Dunne, J.D., & Davidson, R. J. 2008. Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*. 12:163-169.

Key Papers - 4

- Rozin, P. & Royzman, E.B. 2001. Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5:296-320.
- Takahashi, H., Kato, M., Matsuura, M., Mobbs, D., Suhara, T., & Okubo, Y. 2009. When your gain is my pain and your pain is my gain: Neural correlates of envy and schadenfreude. *Science*, 323:937-939.
- Tang, Y.-Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., Yu, Q., Sui, D., Rothbart, M.K., Fan, M., & Posner, M. 2007. Short-term meditation training improves attention and self-regulation. *PNAS*, 104:17152-17156.
- Thompson, E. & Varela F.J. 2001. Radical embodiment: Neural dynamics and consciousness. *Trends in Cognitive Sciences*, 5:418-425.
- Walsh, R. & Shapiro, S. L. 2006. The meeting of meditative disciplines and Western psychology: A mutually enriching dialogue. *American Psychologist*, 61:227-239.

Where to Find Rick Hanson Online



Hardwiring Happiness: The New Brain Science of Contentment, Calm, and Confidence

www.rickhanson.net/hardwiringhappiness

Personal website: www.rickhanson.net

Wellspring Institute: www.wisebrain.org



youtube.com/drrhanson



facebook.com/rickhansonphd



Getting Good at Taking in the Good

Obstructions to Taking in the Good

- General:

- Distractibility
- Blocks to self-awareness in general

- Specific:

- Fears of lowering one's guard
- Sense of disloyalty to others (e.g., survivor guilt)
- Culture (e.g., selfish, vain, sinful)
- Gender style
- Associations to painful states
- Secondary gains in feeling bad
- Not wanting to let someone off the hook

The Four Ways to Offer a Method

- Doing it implicitly
- Teaching it and then leaving it up to the person
- Doing it explicitly with the person
- Asking the person to do it on his or her own

Using HEAL in Trainings

- Take five minutes to explain its rationale and teach it explicitly.
- In the flow, occasionally encourage enriching and absorbing, using natural language.
- Tell people they can use HEAL outside of class to deepen internalization of what they're learning.
- Don't use HEAL when it's inappropriate (e.g., radically choiceless awareness, highly self-critical about any kind of performance).

Adaptations for Children

- All kids benefit from TG. Particular benefits for mistreated, anxious, spirited/ ADHD, or LD children.
- Style:
 - Be matter of fact: this is mental/neural literacy.
 - A little brain talk goes a long way.
 - Be motivating: benefits, “be the boss of your own mind.”
 - Down to earth, naturalistic
 - Scaffold based on executive functions, motivation, and need for autonomy.
 - Brief, concrete

Uses for Children

- Registering curricular skills and other resources
- Motivation for learning; associating rewards
- Seeing the good in the world, others, and oneself – and in the past, present, and future
- Seeing life as opportunity
- Strengthening the sense of being an active learner
- Developing child-specific resources