Practical Brain Science
For Coaching

Hudson Institute of Coaching
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Topics

- Experience-dependent neuroplasticity
- Being on your own side
- Growing inner strengths
- The negativity bias
- Taking in the good
- Practical uses of the HEAL process
- The evolving brain
- Key resource experiences
- Healing old pain
- The fruit as the path
Experience-Dependent Neuroplasticity
A Neuron
Mental activity entails underlying neural activity.
Tibetan Monk, Boundless Compassion
Repeated mental activity entails repeated neural activity.

Repeated neural activity builds neural structure.
Neurons that fire together, wire together.
Self-Directed Neuroplasticity

We can use the mind
To change the brain
To change the mind for the better
To benefit ourselves and other beings.
Being on Your Own Side
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
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.

- But self-compassion is hard for many people, due to feelings of unworthiness, self-criticism, or “internalized oppression.” 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.
  - Sink into the experience of compassion in your body.
  - 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
Growing Inner Strengths
Two wolves in the heart
Inner Strengths Include

- **Virtues** (e.g., patience, energy, generosity, restraint)

- **Executive functions** (e.g., meta-cognition)

- **Attitudes** (e.g., optimism, openness, confidence)

- **Capabilities** (e.g., mindfulness, emotional intelligence, resilience)

- **Positive emotions** (e.g., gratitude, self-compassion)

- **Approach orientation** (e.g., curiosity, exploration)
Cultivation in Context

Three fundamental ways to engage the mind:

- Be with it. Decrease negative. Increase positive.
- Let be. Let go. Let in.

Mindfulness present in all three ways to engage mind

While “being with” is profound, it can be isolated and over-valued in some therapies or spiritual practices.

Skillful means for decreasing the negative and increasing the positive have developed over thousands of years. Why not use them?
Inner Strengths Are Built From Brain Structure
Let’s Try It

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

- **Create** the experience of compassion
  - Have the experience - bring to mind someone you care about . . . Feel caring . . . Wish that he or she not suffer . . . Open to compassion
  - Enrich it
  - Absorb it
The Machinery of Memory

Change in neural structure and function - i.e., learning, memory - is essentially a two-stage process: from activation to installation.

Information - including our experiences - is held in short-term memory buffers and then transferred to and gradually consolidated in long-term storage.

Activated mental states foster installed neural traits.
The Causes of Inner Strengths

How do we build the neural traits of inner strengths?

Traits are developed by installing experiences of the trait and related factors. Positive traits - inner strengths - come mainly from positive states that are turned into enduring neural structure.

We develop mindfulness by repeatedly internalizing experiences of being mindful; we become more compassionate by repeatedly internalizing experiences of compassion; etc.
States are temporary, traits are enduring.

States foster traits, and traits foster states

Activated states --> Installed traits --> Reactivated states --> Reinforced traits

Negative states --> Negative traits --> Reactivated negative states --> Reinforced negative traits

Positive states --> Positive traits --> Reactivated positive states --> Reinforced positive traits
Without this installation – without turning passing mental states into enduring neural structure – there is no learning, no change in the brain.

Activation without installation is pleasant, but has no lasting value.

Of the useful mental states of our clients, what fraction becomes neural structure?
The same research that proves therapy works shows no improvement in outcomes over the last 30 or so years.

Scott Miller
The Negativity Bias
The Brain’s Negativity Bias

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

- Negative stimuli:
  - More attention and processing
  - Greater motivational focus: loss aversion

- Preferential encoding in implicit memory:
  - We learn faster from pain than pleasure.
  - Negative interactions: more impactful than positive
  - Easy to create learned helplessness, hard to undo
  - Rapid sensitization to negative through cortisol
Velcro for Bad, Teflon for Good

The negativity bias

bad experiences
good experiences
A Bottleneck
For Growing Inner Strengths

Unfortunately, the brain is inefficient at turning positive experiences into neural structure.

This design feature of the brain creates a kind of bottleneck that reduces the conversion of positive mental states to positive neural traits.

Most positive experiences are wasted on the brain.

This is the fundamental weakness in psychotherapy, mindfulness training, character education, human resources training, and informal efforts at growth.
The Negativity Bias
Stone age brains in the 21st century
We can deliberately use the mind to change the brain for the better.
Taking in the Good
Just **having** positive experiences is not enough.

They pass through the brain like water through a sieve, while negative experiences are caught.

We need to engage positive experiences actively to weave them into the brain.
Learning to Take in the Good
Have a Good Experience
Enrich It
“Enriching” Factors

- Duration
- Intensity
- Multimodality – thought, perception, emotion, desire, action
- Novelty
- Personal relevance
Absorb It
Link Positive and Negative Material
HEAL by Taking in the Good

1. **Have** a positive experience. Notice it or create it.

2. **Enrich** the experience through duration, intensity, multimodality, novelty, personal relevance

3. **Absorb** the experience by intending and sensing that it is sinking into you as you sink into it.

4. **Link** positive and negative material. [optional]
Have It, Enjoy It
Let’s Try It Again

- **Notice** the experience already present in awareness of some kind of strength . . . focus, determination, vitality, endurance
  - Have the experience
  - Enrich it
  - Absorb it

- **Create** the experience of goals attained
  - Have the experience - bring to mind a time you finished something large or small . . . Open to a sense of completion, accomplishment, relief, success . . .
  - Enrich it
  - Absorb it
It’s Good to Take in the Good

- Development of specific inner strengths
  - General - resilience, positive mood, feeling loved
  - “Antidote experiences” - Healing old wounds, filling the hole in the heart

- 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
Teaching the HEAL Process

- 18 hour course, currently formatted in 3-hour classes spread over six or seven weeks

- First two classes lay a foundation and teach the first three steps of HEAL; third class teaches the fourth step (Link); remaining classes focus on internalizing experiences and growing inner strengths related to the Avoiding harms, Approaching rewards, and Attaching to others systems

- Information about taking the course, training in applying it in professional settings, and training to teach it is available at www.RickHanson.net.
Research on the HEAL Process

- With collaborators from the University of California, a 2013 study on the HEAL course, using a randomized waitlist control group design (46 subjects).

- Course participants, compared to the control group, reported more Contentment, Self-Esteem, Satisfaction with Life, Savoring, and Gratitude.

- After the course and at two month follow-up, pooled participants also reported more Love, Compassion, Self-Compassion, Mindfulness, Self-Control, Positive Rumination, Joy, Amusement, Awe, and Happiness, and less Anxiety and Depression.
Self-Esteem

Mean Score

Pre-Course  Post-Course  2-Months Later

TGC  Wait-list
Combined Sample: Depression (BDI) & Anxiety (BAI)

Mean Score

Pre-Course | Post-Course | 2-Months Later

BDI

BAI
Practical Uses of the HEAL Process
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
Targets of TG

- **Thoughts** - expectations; object relations; perspectives on self, world, past and future
- **Perceptions** - sensations; relaxation; vitality
- **Emotions** - both feelings and mood
- **Desires** - values, aspirations, passions, wants
- **Behaviors** - reportoire; inclinations
Promoting Client Motivation

During coaching and between sessions, TG:
- Key resource experiences
- When learning from coaching works well
- When realistic views of you, the world, etc. come true
- Good qualities in yourself
- New insights

Can be formalized in daily reflections, journaling

Try appropriate risks of “dreaded experiences,” notice the (usually) good results, and then take these in.
Obstructions to Taking in the Good

- General
  - Distractibility
  - Blocks to self-awareness in general

- Specific
  - Fears of losing one’s edge or 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
  - Thoughts that TG is craving that leads to suffering
The Evolving Brain
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
Evolution of the Brain

The Triune Brain - (P. MacLean 1990)
Three Motivational and Self-Regulatory Systems

- **Avoid Harms:**
  - Predators, natural hazards, aggression, pain
  - Primary need, tends to trump all others

- **Approach Rewards:**
  - Food, shelter, mating, pleasure
  - Mammals: rich emotions and sustained pursuit

- **Attach to Others:**
  - Bonding, language, empathy, cooperation, love
  - Taps older Avoiding and Approaching networks

Each system can draw on the other two for its ends.
"With all due respects, I find your disparaging remarks about the 'reptilian brain' unnecessary"
The Homeostatic Home Base

*When not disturbed by threat, loss, or rejection [no felt deficit 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** (the Avoiding system)
- **Contentment** (the Approaching system)
- **Love** (the Attaching system)

This is the brain in its homeostatic **Responsive, minimal craving** mode.
The Responsive Mode
Positive experiences of core needs met - the felt sense of safety, satisfaction, and connection - activate 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.
But to Cope with Urgent Needs, We Leave Home . . .

*When disturbed by threat, loss, or rejection [felt deficit 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** (the Avoiding system)
- **Frustration** (the Approaching system)
- **Heartache** (the Attaching system)

This is the brain in allostatic, **Reactive, craving** mode. 64
The Reactive Mode

- Avoid
- Hatred
- Ignorance
- Suffering
- Heartache
- Greed
- Approach
- Attach
Choices . . .

Or?

Reactive Mode

Responsive Mode
Key Resource Experiences
Some Types of Resource Experiences

Avoiding Harms
- Feeling basically alright right now
- Feeling protected, strong, safe, at peace
- The sense that awareness itself is untroubled

Approaching Rewards
- Feeling basically full, the enoughness in this moment as it is
- Feeling pleased, glad, grateful, satisfied
- Therapeutic, spiritual, or existential realizations

Attaching to Others
- Feeling basically connected
- Feeling included, seen, liked, appreciated, loved
- Feeling compassionate, kind, generous, loving
Pet the Lizard
Feed the Mouse
Hug the Monkey
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
Healing Old Pain
Using Memory Mechanisms To Help Heal Painful Experiences

The machinery of memory:
- When explicit or implicit memory is re-activated, it is re-built from schematic elements, not retrieved *in toto*.
- When attention moves on, elements of the memory get re-consolidated.

The open processes of memory activation and consolidation create a window of opportunity for shaping your internal world.

Activated memory tends to associate with other things in awareness (e.g., thoughts, sensations), esp. if they are prominent and lasting.

When memory goes back into storage, it takes associations with it.

You can imbue implicit and explicit memory with positive associations.
The Fourth Step of TG

- When you are having a positive experience:
  - Sense the experience sinking down into old pain and deficits, and soothing and replacing them.

- When you are having a negative experience:
  - Bring to mind a positive experience that is its antidote.

- Have the positive experience be prominent while the negative experience is small and in the background.

- You’re not resisting negative experiences or getting attached to positive ones. You’re being kind to yourself and cultivating resources in your mind.
Let’s Try the Link Step of HEAL

Avoiding Harms
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The Fruit as the Path
Cultivation Undoes Craving

- Taking in the good is an openness to positive experience while letting go – allowing the experience in and through you.

- Much suffering and harm comes from “craving” – resisting the unpleasant, grasping after the pleasant, and clinging to the heartfelt – a drive state based on deficit or disturbance of core needs – safety, satisfaction, connection – being met.

- By repeatedly internalizing the felt sense of core needs being met, we gradually reduce the sense of deficit or disturbance, and rest increasingly in a peace, happiness, 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.
The Goal as the Method

Peace

Contentment

Love
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.

Dhammapada 9.122
Thank you
Suggested Books

See www.RickHanson.net for other suggestions.

See [www.RickHanson.net](http://www.RickHanson.net) for other scientific papers.


Key Papers - 2


- 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


Key Papers - 4


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