Mediation and the Brain: The Neuropsychology of Peace, Conflict and Negotiation

What This Is About

- Our brain
- Brain evolution
- The self protective system
- The caring system
- Brain chemistry
- Lessons along the way

"The Art of Peace does not rely on weapons or brute force to succeed; instead we put ourselves in tune with the universe, maintain peace in our own realms, nurture life, and prevent death and destruction. The true meaning of the term *samurai* is one who serves and adheres to the power of love."

Akido Master Morihei Ueshiba

Our Brain

- We are 98% emotional; 2% rational
- Our brain is both self-protective and caring
- Our default mode is self-protective
- Our self-protective mode is pre-conscious

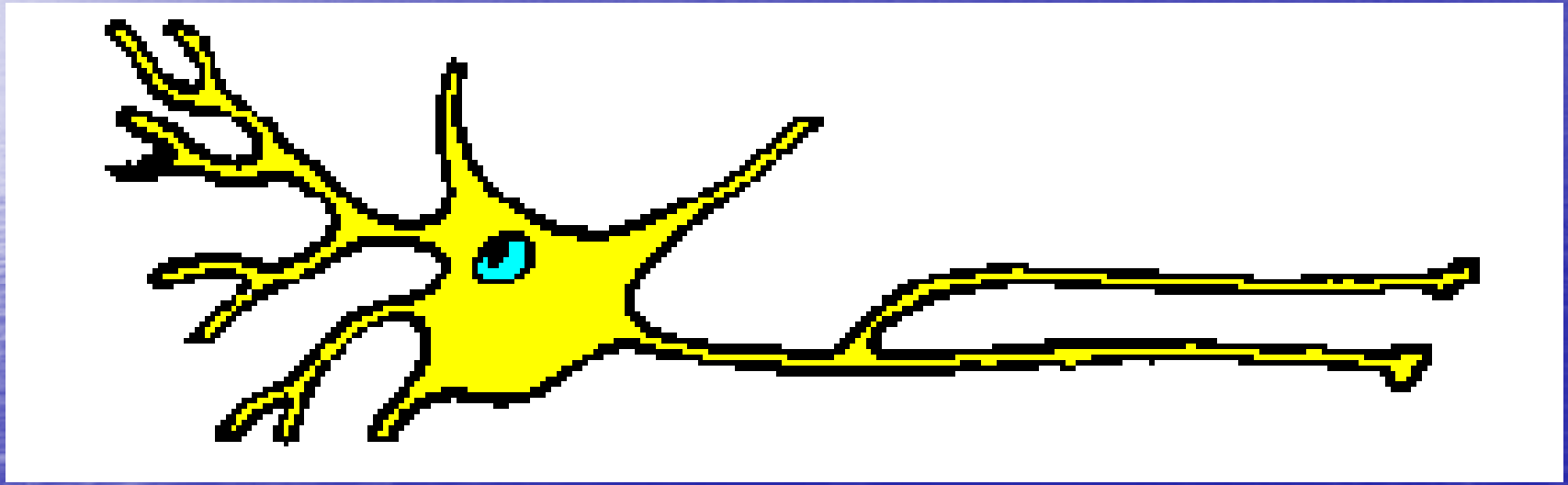
Evolutionary Biology

- Humans owe survival success to cerebral capacity
- With cerebral capacity, the environment becomes equivocal
- “Right” and “wrong” assessments are measured by survival value
- Thus, “right” and “wrong” are not based on moral/philosophical/scientific grounds
- Human brains do not evaluate the world objectively

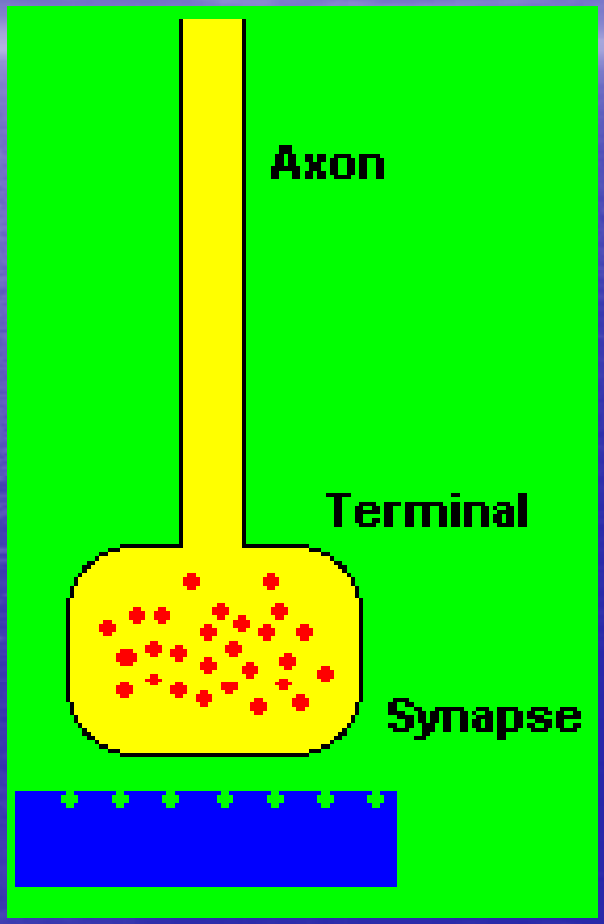
The Synaptic Brain

- Brain cells include neurons and glilial cells
- Neurons have a cell body, an axon, and multiple dendrites
- Cells are not physically connected to one another.
- Gap between an axon of one neuron and a dendrite of another is the synapse

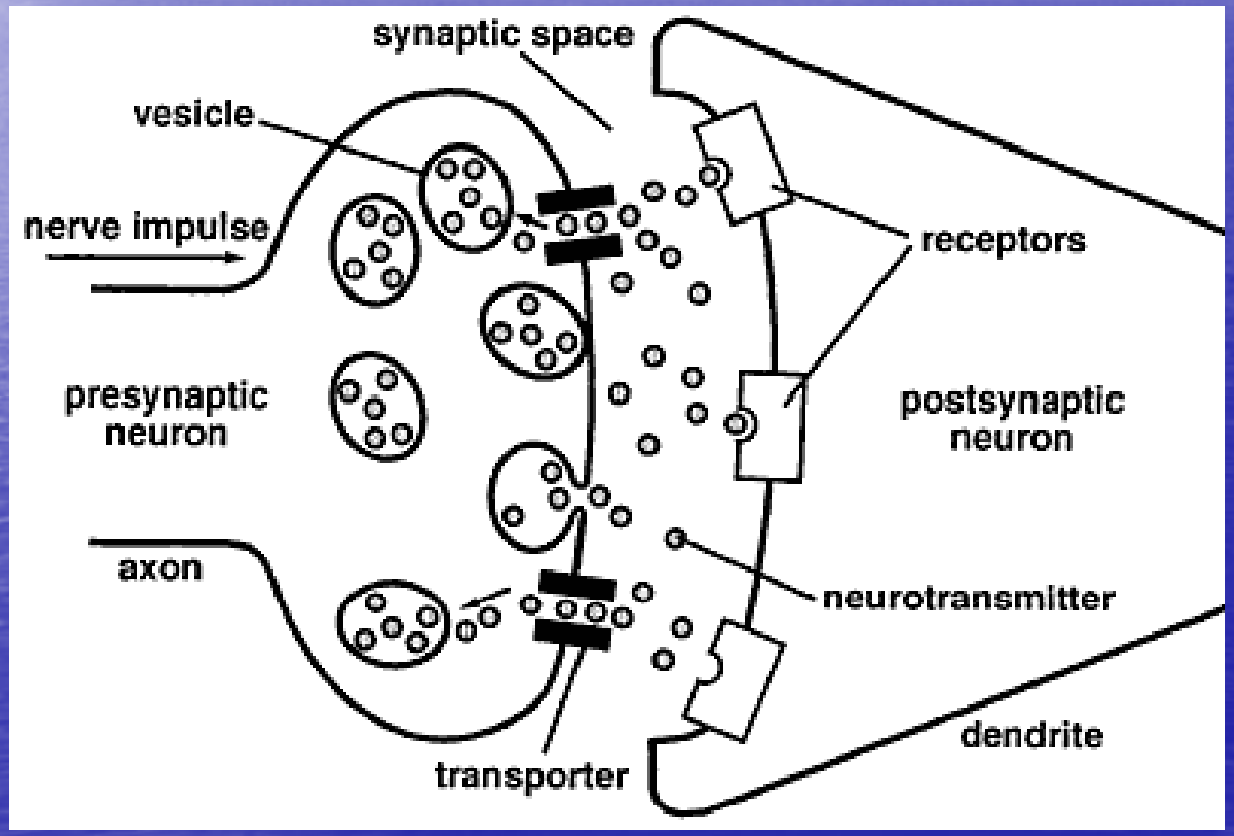
Neuron Structure



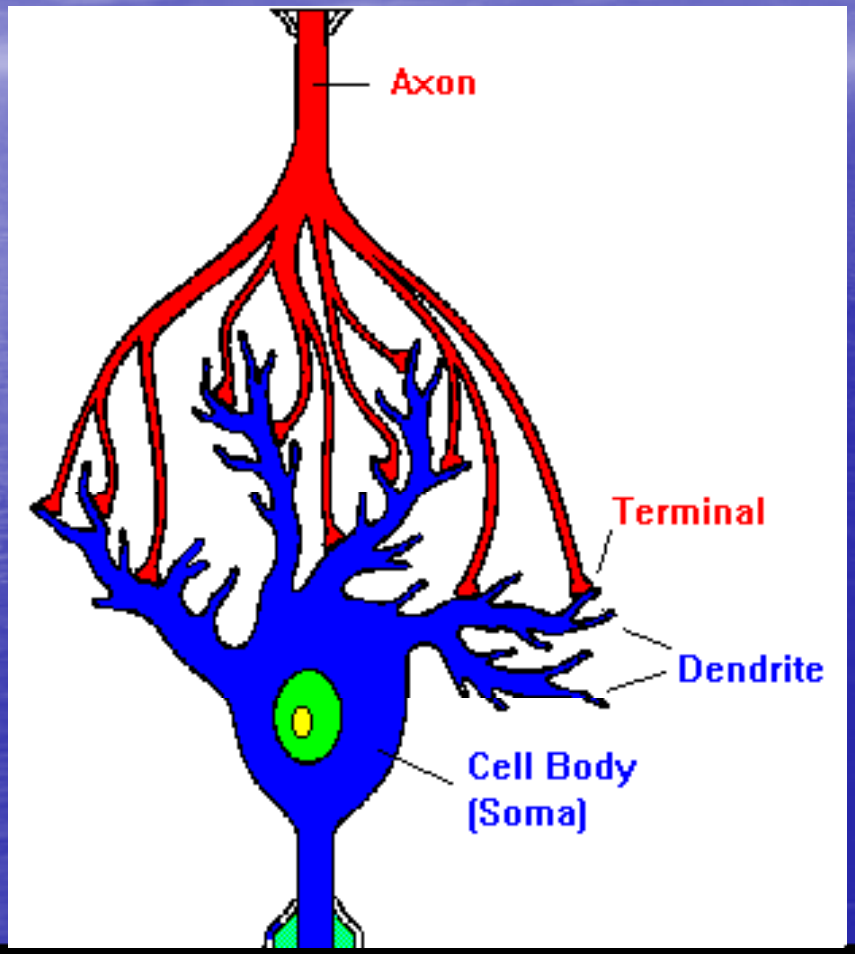
The Synapse Structure



Neurotransmitter System



Many axons, many dendrites



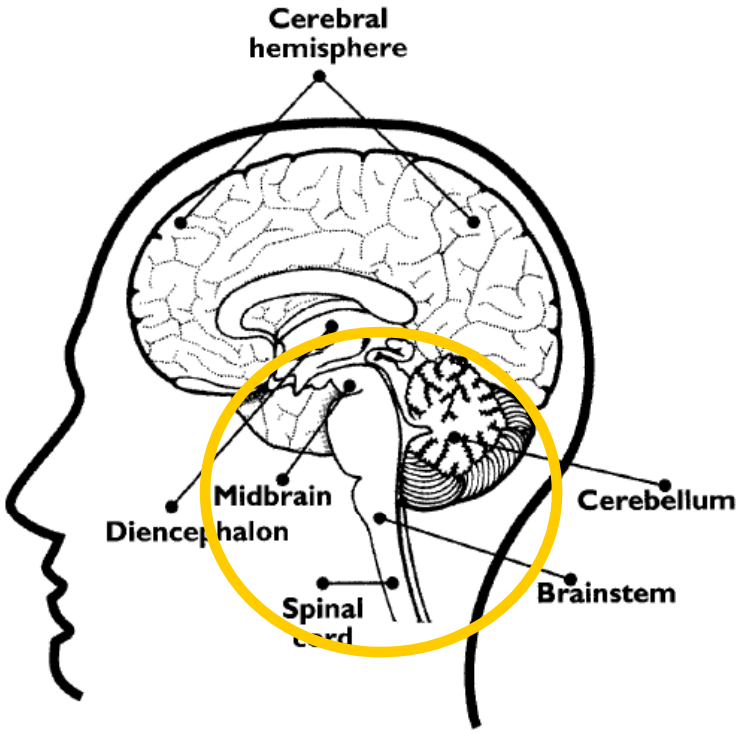
Brain Evolution

- Brain stem
- Midbrain
- Neocortex

Brain Stem

- Phylogenetically 500 million to 1 billion years old.
- Controls life processes
- Higher brain functions are subordinated to needs of the brain stem
- Intellectual capacity will be concentrated on survival

Major Regions of the Brain

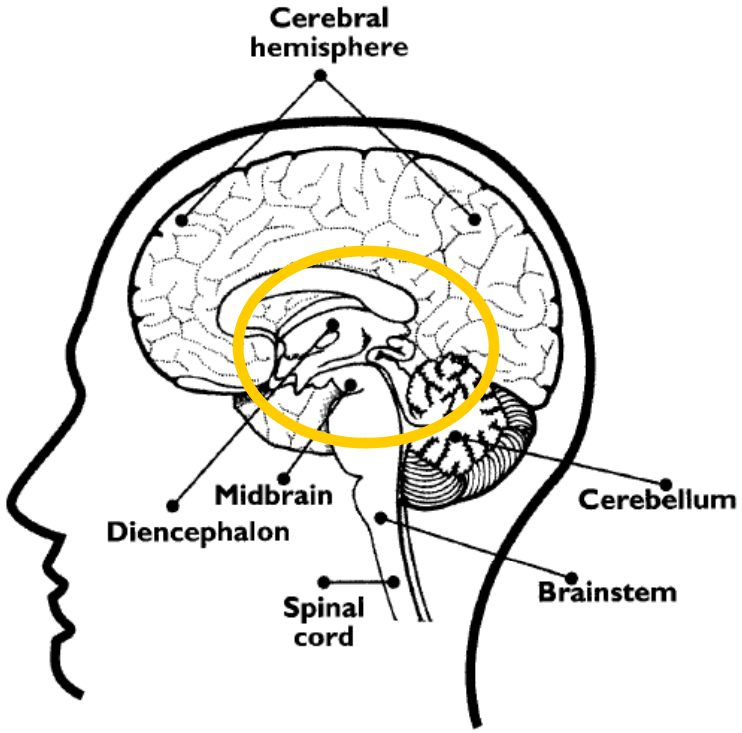


Source: National Institute on Drug Abuse (1997) Mind Over Matter: The Brain's Response to Drugs, Teacher's Guide.

Midbrain

- 300 – 800 million years old
- Controls reactions to environmental stimuli
- Provides standardized reaction to particular environmental configurations
- Includes fear response system

Major Regions of the Brain

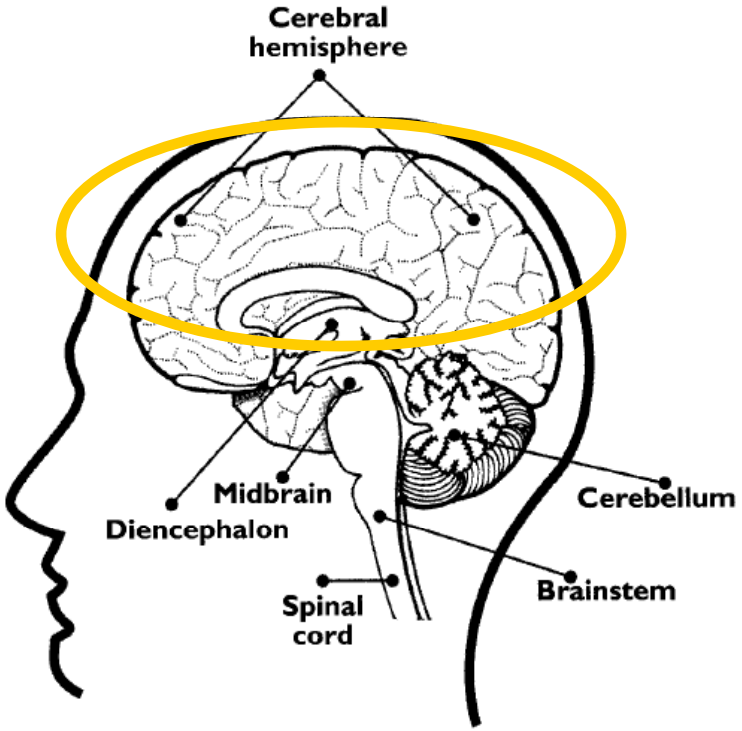


Source: National Institute on Drug Abuse (1997) Mind Over Matter: The Brain's Response to Drugs. Teacher's Guide.

NeoCortex

- 4 million years old
- Allowed for transition from biological to cultural evolution
- Development of will and consciousness
- Led to the conflict between biological inheritance and human culture
- Archaic response mechanisms necessary for survival 10 million years ago still persist

Major Regions of the Brain



Source: National Institute on Drug Abuse (1997) Mind Over Matter: The Brain's Response to Drugs, Teacher's Guide.

Summary So Far

- Neurons
- Synapses
- Brain Structure

Moving On....

- Rationality and emotionality
- Fear
- Brain chemistry

Rationality: Serial Stage Model

A social event occurs.

We see and hear what is going on.

We consciously evaluate the people and their actions.

We consider an appropriate response.

We respond.

Implications

- We believe we are rational
- We believe our reactions are controllable through will
- We attribute the same rational ability to others
- When they fail to act “rationally,” we impute motive and intent.

Parallel Stage Model

A social event occurs.

An automatic set of unconscious processes simultaneously:

Judges whether they are bad or good and generates options

Sets a goal for interacting with them and initiates our actions with them

Decides what all the things, people and actions are, determines their attributes (e.g., “polite” or “rude”) and selects sensory information to be sent to the conscious mind

We become conscious of what is going on.

We create explanations.

Implications

- We cannot control our reactions through will
- We make decisions and judgments more than ¾'s of a second before we become aware
- We judge quickly, then rationalize our judgment
- Attribution of rationality to others is a false assumption
- Which leads to incorrect conclusions about motives and intent

Lesson #1 for Mediators

- People are emotional, not “irrational”
- Talking in terms of “rationality” or “reasonableness” is meaningless to the brain
- Rationality is a very small part, albeit important, part of brain function
- Work on the emotional systems first

Fear Response System

- Based in the midbrain
- Phylogenetically very old
- Instantaneous judgments “good” or “bad”
- Decides to approach or defend
- Neocortex is 750 milliseconds behind

Self-Protective Process

- Problem perceived
- Anxiety, fear or startled reaction
- Hyper-arousal or dissociative response
  - Hyper-arousal means fight or flight
  - Dissociative means freeze
- Neocortex rationalizes behavior after the fact
- Reactivity dependent on life experience

Summary

- Judging process is preconscious
- We are predisposed to judge “bad” rather than “good”
- We approach for food, shelter, and sex.
- We defend against everything else

Lesson #2 for Mediators

- Watch for the fear response reaction
- When it occurs, remove the trigger
- Avoid the temptation to judge
- Stay present in the moment with the triggered party

Beliefs in the Brain

Emory 2006 study

- Democrat and Republican subjects selected for strong belief structure
- fMRI scanned
- Consistent and inconsistent true facts stated to subjects

Findings

- Consistent facts lit up emotion circuits of brain
- Inconsistent facts lit up emotion circuits, shut down cognitive circuits, and released dopamine
- Conclusion: We have a difficult time evaluating and interpreting information inconsistent with strong belief structures

Lesson #3 for Mediators

- Beliefs cannot be easily changed
- Beliefs interfere with objective assessment and evaluation
- Work below beliefs to find common values

Cognitive Operators

- Holistic
- Reductionistic
- Abstractive
- Quantitative
- Binary
- Causal
- Emotional value

Conflict Behavior and Cognitive Operators

- The cognitive operators act on and interpret information
- Conflict between people occurs when different cognitive operators are dominating the interpretive process

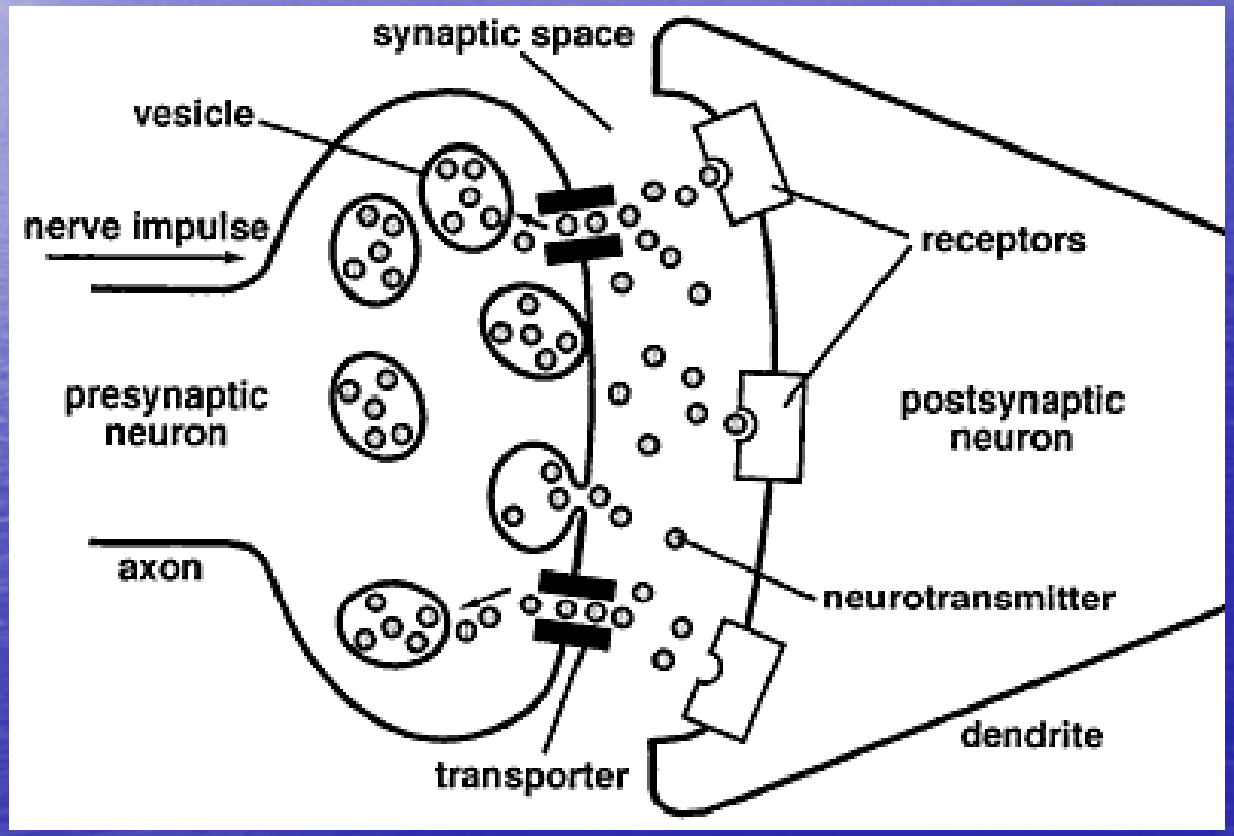
Lesson #4 for Mediators

- Even when people are “rational,” they can still interpret “facts” radically differently
- Understand which cognitive operators are dominating an interpretation of events
- Recognize conflicts arising from different cognitive operators
- Reframing and summarizing back are basic processes that engage multiple cognitive operators for parties

Neurotransmitters And Neuromodulators

- Neuromodulators maintain the forebrain's global state
- Two main classes: the neuroamines and the neuropeptides

Neurotransmitter System



Brain Chemistry

- Glutamate—basic transmitter
- Oxytocin—modulator
- Serotonin—modulator
- Dopamine—modulator

Table of Neuromodulators

Acetylcholine	Memory
Dopamine	Hedonism
Endorphins	Pain relief
Histamine	Arousal
Melatonin	Alarm clock
Norepinephrine	Imprinting
Oxytocin	Orgasm
Serotonin	Relaxation
Vasopressin	Aggression

Caring Response

- Neurochemically controlled through oxytocin, serotonin, dopamine
- Must allow response to develop—not a reaction
- Reflect, relate, relax
- Acknowledge and accept anxiety and fear

Oxytocin and Trust

Zak et al 2005 study

- Subjects were given oral doses of oxytocin
- Control subjects were not
- All played a trust game with a confederate of the research team
- Results: Subjects with higher oxytocin levels demonstrated much higher levels of trust

Traditional Ways of Raising Oxytocin Levels

- Sex
- Breast feeding
- Touching (shaking hands)
- Eating together
- Working together

Lesson #5 for Mediators

- Don’t caucus if you need to build trust
- Serve food and drink (but not sodium glutamate)
- Shaking hands is a good thing

Serotonin

- Serotonin has a complex modulating role
- Made from the amino acid tryptophan
- System was essentially in place 500,000,000 years ago
- Maintenance of cortical tone

Decreased Serotonin

- Increased exploratory, eating, and sexual behavior
- Fear-induced aggression

Serotonin and Social Status

- Low levels of serotonin = low status
- Higher status unrelated to larger body size or canine teeth
- Status changes always preceded by changes in affiliative behavior with females

Serotonin Effects

- Positively related to prosocial behavior, such as grooming
- Negatively related to antisocial behavior, such as fighting

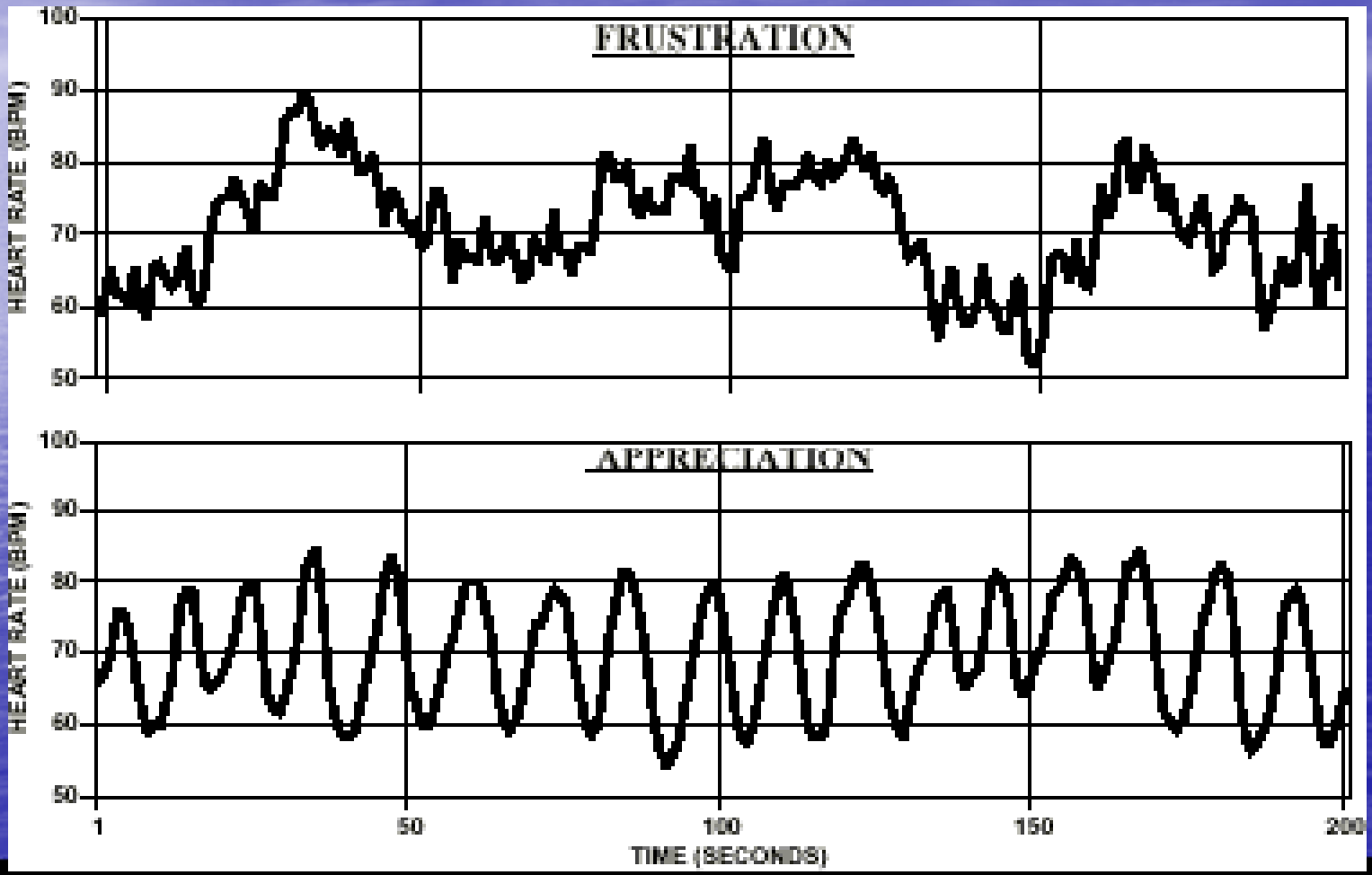
Lesson #6 for Mediators

- Serve turkey sandwiches for lunch
- Control your environment for all five senses-aromas, views, sounds, touch, and taste
- Use ritual to work with beliefs and to set belief structures
- Watch for triggers and de-activate when possible

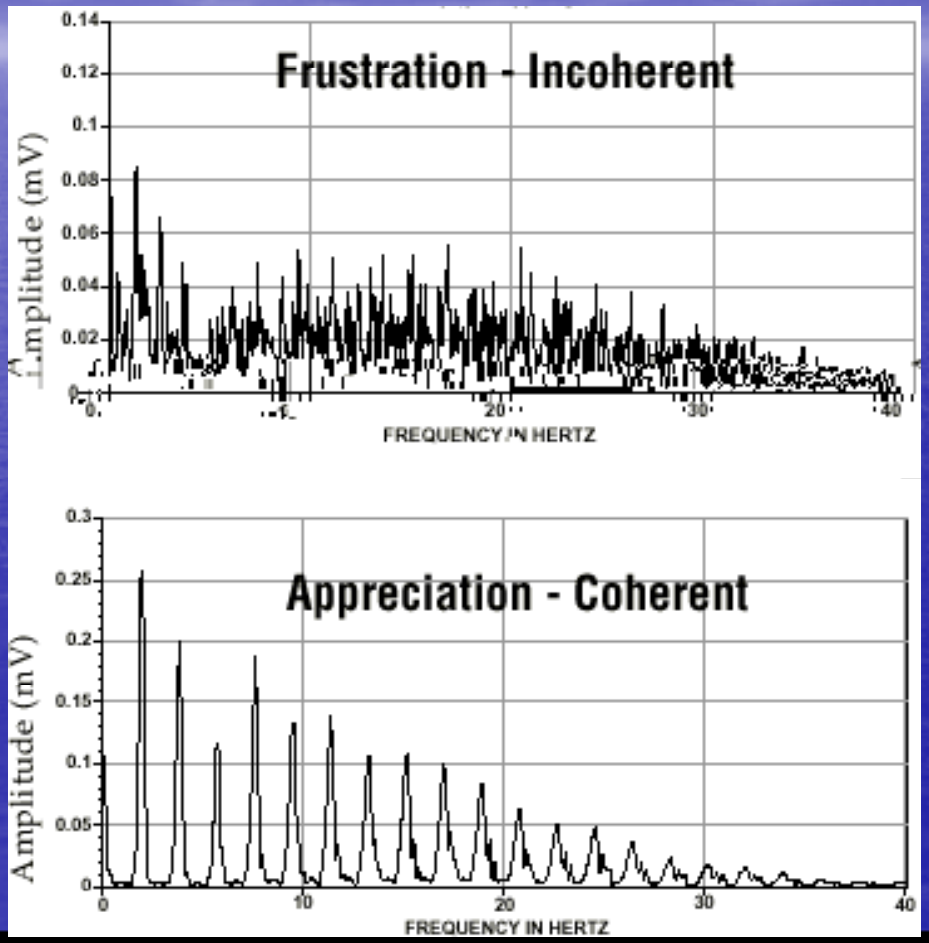
Heart Brain Relationship

- The heart is a powerful neurophysiological system
- Heart rate variability changes in coherence depending on emotion

Heart Rate Coherence



Amplitude Coherence



Cardioelectromagnetic Communication

- The heart is an electromagnetic transmitter-signals detectable some distance from the physical body
- The nervous system acts as an antenna
  - Tuned to the hearts of others
  - Responds to the hearts of others
- This system permits exchange of energetic information between people

Experimental Design

- Two subjects practiced a technique creating high heart rate variability coherence
- Sat facing each other six feet apart
- No intention of ”sending” energy
- Participants unaware of purpose of experiment
- Source subject’s heart ECG was the baseline
- Target subject’s brain measured through EEG

Heart Brain Synchronization Between Two People

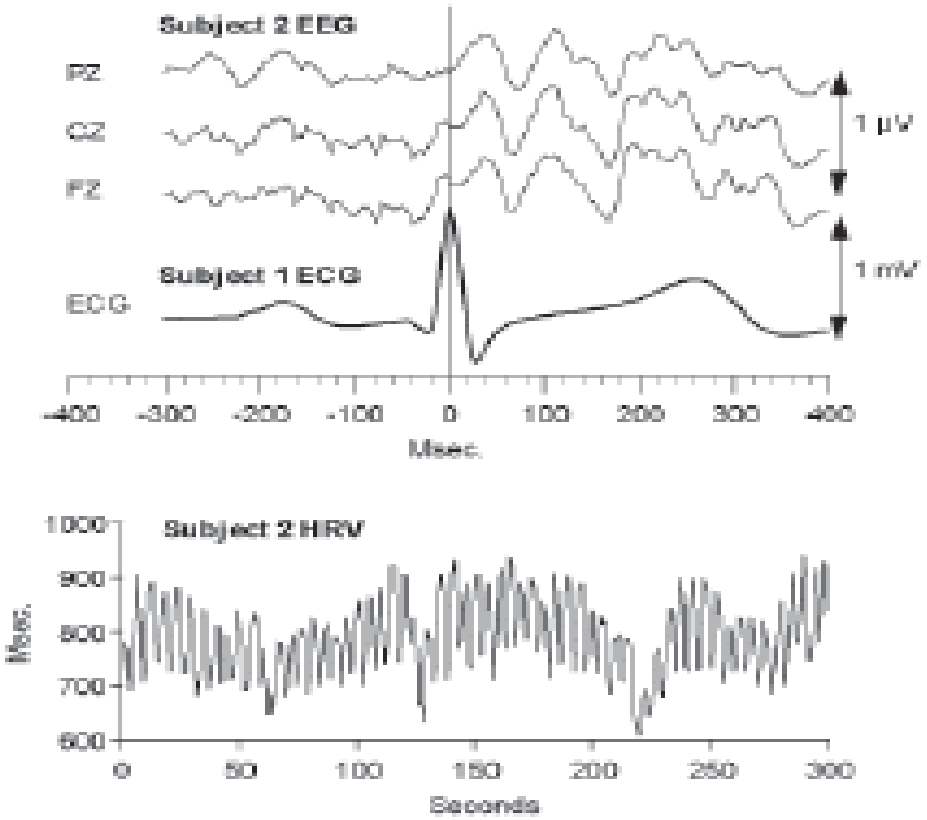


Figure 6. Heart-brain synchronization between two people. *The top three traces are Subject 2's signal averaged EEG waveforms, which are synchronized to the R-wave of Subject 1's ECG. The lower plot shows Subject 2's heart rate variability pattern, which was coherent throughout the majority of the record. The two subjects were seated at a conversational distance without physical contact.*

Overlay of Averaged EEG and ECG

Findings

- The heart appears to create a coherent energy field
- Alpha signal of target brain synchronized with the source subject's heart rate, despite the extremely weak signal.
- The degree of coherence in the receiver's heart appears to determine whether the receiver's brain synchronizes with the source's heart
- The greater the degree of coherence, the more sensitive the target is

What about negative emotions

- Negative emotions create an incoherent heart rate
- Incoherence inhibits the ability to synchronize with another's heart
- Higher emotional stability equates to higher coherence and reduces susceptibility to negative emotions of others

Stages of Emotional Development

- Birth-8 months—infant perceives “we two are one”
- 8 months—primitive differentiation “everything that is non-self is threatening”
- 1 – 3 years—toddler perceives “me” as different from “you”
- 3-5 years—young child perceives “me” “you” and “he” as ability to form triadic relationship forms

Stages of Cognitive Development

- Birth to 4-6 years old---perceptions based on sense of individuality
- 6-8 years—distinctions between different points of view become possible, but without empathy
- 8-10 years—self-reflective perspective develops
- 10-12 years—mutual perspective develops
- 12-15 years—network of overall social relations is acknowledged

Stages of Conflict Escalation

- Stage I—Conflicts resolved through care and mutual empathy
- Stage II—Fluctuation between cooperation and competition
- Stage III—Sense of common ground is lost
- Stage IV—Loss of empathy although still recognition of other
- Stage V—Totalizing of antagonistic perspectives

Implications

- Conflict escalation follows a predictable path
- Escalation stages are reciprocal to emotional and cognitive development
- Escalation represents emotional-cognitive regression
- De-escalation requires movement backwards through the various stages

Challenges

- People are at different escalation stages
- People will move at different rates
- Parties may be at one stage, while counsel are engaged in a separate escalation phase
- Lack of de-escalation may be perceived as an escalating event

Final Lessons

- Create a safe, clean, somatically peaceful environment (feng shui is good)
- Create conditions for connecting rather than defending
- Understand limitations of reason, rational thinking
- Be aware of neural processes

“Instructors can impart only a fraction of the teaching. It is through your own devoted practice that the mysteries of the Art of Peace are brought to life.”

Akido Master Morihei Ueshiba

The End

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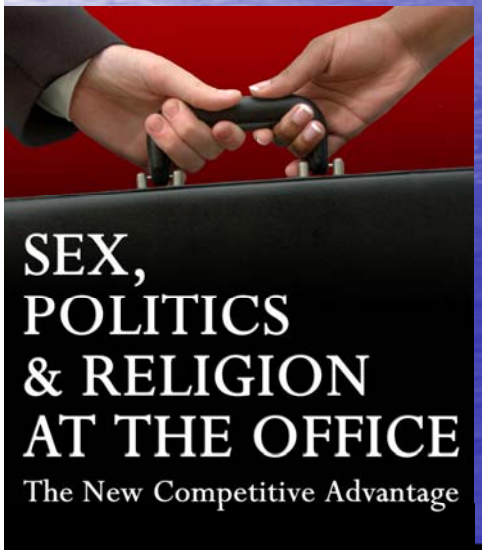

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