Interpersonal Biofeedback; A Hybrid of Couples Counseling and Biofeedback

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“I and the Village”, Chagall, 1911
Germs Don’t Exist?

• 1840 Hungarian Dr Ignaz Semmelweis
• fatal childhood fever
• impoverished women in obstetrics ward with midwifes
• compared to wealthier women with personal doctors
• laughed at when suggested washing hands following visits to morgue
• 1880’s Louis Pasteur & Joseph Lister
Beginnings of Family Therapy

• The origin of family therapy began with Gregory Bateson’s study of information feedback processing with animal and human communication. At the Mental Research Institute, he worked with key family therapy figures such as Jay Haley and Don Jackson. Their early research concluded that communication occurs on multiple levels; also, one “cannot NOT communicate”.

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General Systems Theory

- Family systems concepts were developed by Ludwig von Bertalanffy in 1945.
- He utilized a biological model of living systems.
- He introduced general systems concepts:
  - homeostasis
  - wholeness
  - nonsummativity
  - equifinality
Family Systems - Major Concepts

• **Homeostasis**: Systems tend to regress to the status quo even when it is detrimental to the well-being of family members. *(a sort of default mode network)*

• **Wholeness**: Systems (families / couples) are comprised of interdependent elements. Change in any part of the system impacts all of the system.

• **Nonsummativity**: A system cannot be understood by examining it in isolated segments.

• **Double bind**:  
  1. One person is repeatedly exposed to two conflicting and contradictory injunctions  
  2. The person is then required to respond.
Family Systems - Major Concepts

• **Marital schism**: No role reciprocity between the couple; Marriages are significantly conflicted.

• **Marital skew**: One partner’s severe psychopathology dominates the other partner resulting in conflicting loyalties between the children who try to protect their parents’ marriage.

• **Pseudomutuality**: A pretense of togetherness that hides underlying conflict and prevents genuine emotional intimacy between a couple.

• **Pseudohostility**: Frequent and intense bickering that covers up deeper conflict and prevents genuine emotional intimacy between a couple.
Family Systems - Major Concepts

- **Symmetrical relationships**: Based on equality and similarity between partners. However, they may escalate into competitive relationships.

- **Complementary relationships**: Partner’s strengths and vulnerabilities fit together well in executing marital and family tasks; Complementary relationships may become conflictual if the couple’s differences become pronounced, which leads to an imbalance in the dyad.

- **Marital quid pro quo**: The accumulation of unconscious marital roles and rules that are established during a long-term relationship. These roles/rules need to be made explicit to help couples identify rules that are not fair or no longer work.
Murray Bowen – Family Systems Theory

- Triangles
- Differentiation of self
- Nuclear Family Emotional System
- Family Projection Process
- Multi Generational Transmission Process
- Emotional Cut-off
- Sibling position
- Societal Emotional Systems
Differentiation

- Bowen - Differentiation from Family of Origin “A person with a well-differentiated "self" recognizes his realistic dependence on others, but he can stay calm and clear headed enough in the face of conflict, criticism, and rejection to distinguish thinking rooted in a careful assessment of the facts from thinking clouded by emotionality”. Georgetown Family Center.

- Jung – Differentiation of Thoughts from Feelings, Self Consciousness from Collective, Pre-natal from Post-Natal

- Biofeedback – helping patients differentiate muscles, brainwave states, etc. from their environmental experiences or in motion

- Kassel – Differentiation allows for emotional plasticity and ecology; a better ability to shift gears. Without Differentiation of Self from others, thoughts from feelings and physiology, bad things may happen (within/without) in dyads and in groups of people. In long term, Bowen’s Societal Regression
From Neurons to Neighborhoods to the World
1977, Michael Kerr

Nina Sobel, Artist -1970 something
What do Couples Do When They Are Good Together?:

• Communicate with Each Other
• Calm Each Other
• Appreciate Each Other
• Trust Each Other
• Feel for Each Other
• Turn Toward Each Other
• In Tune, Together when Apart, Flexible
John Gottman

• Marital Lab
• Learned to Predict Marital Success
• 4 Horseman of the Apocalypse;
  1. Criticism
  2. Defensiveness
  3. Contempt
  4. Stonewalling

PHYSIOLOGICAL REACTIVITY EFFECTS OTHERS
Autonomic Nervous System

• The ANS is divided into three divisions:

• the parasympathetic, with cranial and sacral connections,

• the Sympathetic, with central nervous system connections in the thoracic and lumbar segments of the spinal cord,

• and the enteric nervous system which occupies the digestive tract. (MacArthur Research Network)
Emotions vs. Feeling

Emotions are action-programs related to homeostasis, not subjective feelings.

Feelings described as composite perceptions of

1. a particular state of the body, ACTUAL or SIMULATED
2. a state of altered cognitive resource; the deployment of certain scripts
• Describes interpersonal circuitry as the information flow between 2 people

• Mirror neurons → superior temporal area → insula → subcortical zone (limbic, amygdala, brain stem, body firing) causes shift in response to someone else, then comes back up through the insula to deposit itself in the middle of the PFC. (unless its trauma and there is disconnect between cortex and hippocampus).
Dan Siegel – The Neurobiology of We

- Core of social brain becomes part of energy and information flow into cortex and allows insight and empathy = MINDSIGHT. We have images of another person’s mind and can show we care about things and care about them. How we see we are ultimately connected to each other, open our hearts and essence of mental experience to joining and resonating..

- We link into a wholeness but honor differences. In a relationship we try to promote interaction of 2 different beings, become part of each other, letting resonance frequency do its job as evolution provided. Defenses and prior judgment move aside and allow ourselves to see other persons statement or position. “We” is about joining, not mimicking.

“The Kiss” – Gustav Klimpt

This rt PFC to rt PFC is contaminated by other sensory input or STRESS!
Stan Tatkin, PsyD, MFT

Turning Toward and Turning Away

Five Domains in working with couples:

1. Infant and Adult Attachment
2. Arousal Regulation
3. Neurobiological Development (how couples handle conflict and if they handle with secure or insecure functioning)
4. Therapeutic Enactment – Stage experience before interpretation
5. Therapeutic Narrative – The therapist’s position of why the couple should be together
Putting it Together

• We are always training for something or being trained through family of origin, general learning and experiences

• Heart rates, breathing rates, temperature respond to one another... assuming neuro-typical.

• When our physiology is under stress...
  • The limbic system hijacks the influence of the frontal lobes, orients attention to potential threat, and narrows our focus to ward off threat.
Steve’s Research Baselines; Pre and Post Data

- Resting
- Neutral Talking
- Recovery
- Argument
- Recovery

THIS DATA IS GRAPHEO TO SEE IF THERE HAS BEEN CHANGE
I-BF Clinical Session - 6th Session:
Dialogue where she is stating her needs.

Reviewing mode. Open Display session. Client: COUPLE THREE. Screen: Interpersonal Biofeedback

Interpersonal Biofeedback

- Temp (deg): 92.45
- Skin Cond (s): 5.18
- Heart Rate (bpm): 75.48
- Respiration Rate (bpm): 20.60
- Peak Frequency:

Pace Rate: 5.580

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Steve’s Research

8 Training Sessions

- Educate to psycho-physiology (fight-fight response, adaptation to interpersonal and environmental stressors).
- Teach relaxation (autogenics, diaphragmatic breathing), home practice, to self-regulate.
- Get oriented toward screen; Work with Feedback
- Educate to Gottman/Comm Skills, practice self-regulation of communication and with biofeedback. Replay, discuss.
- Train to Resonance Frequency, Stress talk (argument) with Biofeedback, Communication practice.
- Practice, Practice, Practice. Look for weaknesses, then focus on strengths.
When we put the brakes on Sympathetic Nervous System Arousal (i.e. the fight/flight response), we open our focus of awareness and are more capable of EMPATHY.

Effects of listening and mirroring.

Do we then grow Mirror Neurons when we are pre-frontal to prefrontal?
Potential Uses of Interpersonal Biofeedback

- Mental and Medical Health Clinics
- Exploring Patient/Therapist dyads
- Schools
- Work Environment
- Performing Arts – (An Extension of Method Acting)
- Sports
- Persons in Positions of Power (Police Officers)
Interpersonal Neurofeedback

- Joe Kimiya’s idea – 2 Rooms
- Les Fehmi – “Open Focus”
  - Narrow, Immersed, Diffused, Objective
  - SYNCHRONY IS CRUCIAL FOR INFORMATION PROCESSING IN THE NERVOUS SYSTEM
- Bob Grove - Interactive Biofeedback
- Bowen Center - ?
It’s Powerful Stuff

And must be used with a deeper understanding of human nature, psychophysiological science, communication and family emotional systems.

When “News of Differentiation” comes to consciousness, there is an opportunity for growth or a chance for retreat.
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