Neuroscience of Personality

Principles of the Psyche as a Living System

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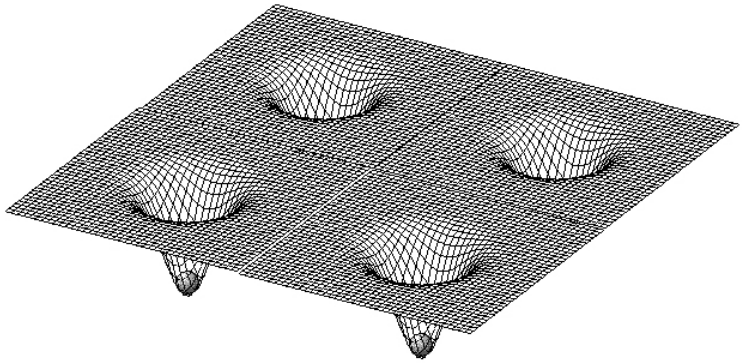
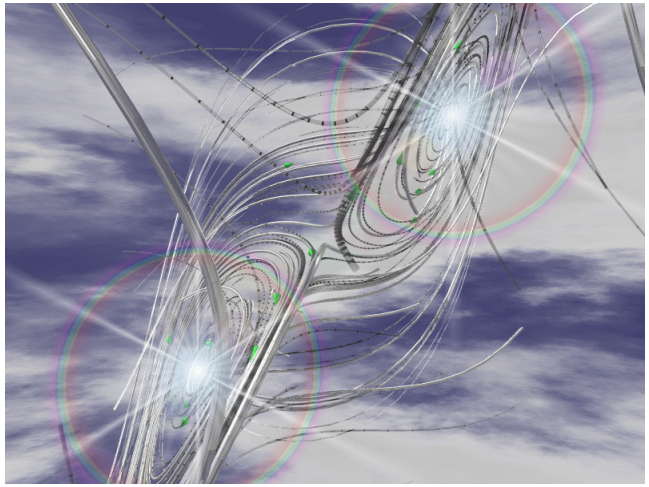
The brain is a living system

Theory: Does the brain as a living system show patterned behavior?

Observation: Human behavior, neurological activity, and self-experience show patterns amid a landscape of possibilities.

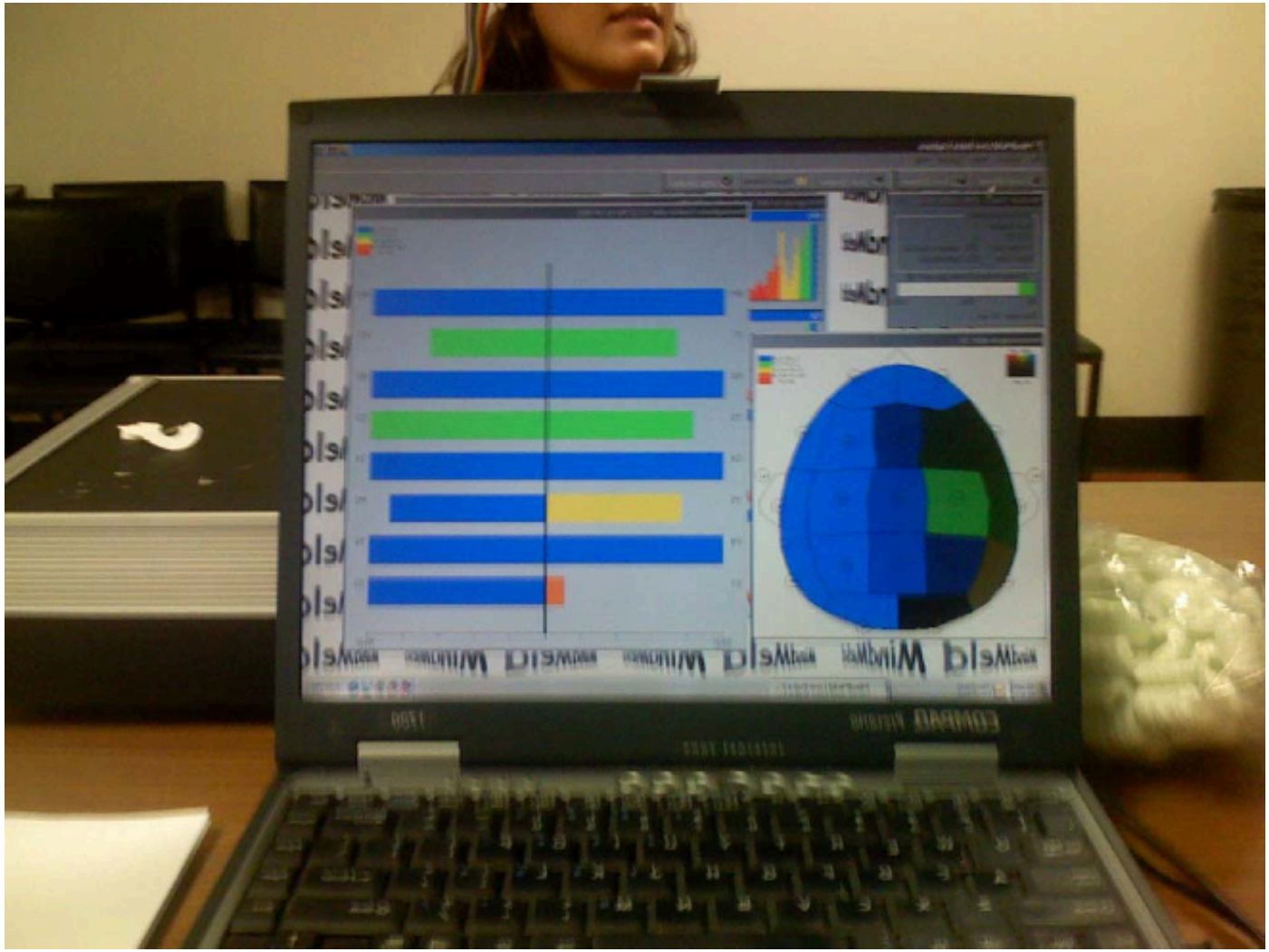




Possible Explanation: Patterns may result from the complex interplay of numerous factors (biological, cultural, geographic, social, etc.) that constrain each other in parallel. The patterns may also be means of survival.

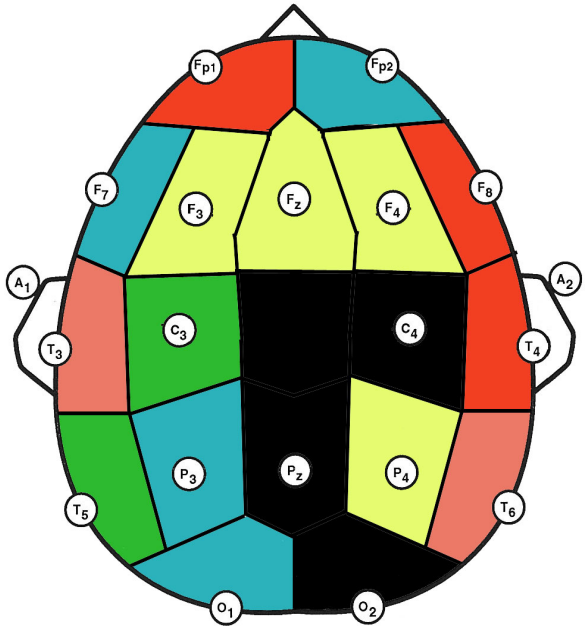
This is my lab for studying brains.

This is what I see.



I use EEG technology

- Electro-Encephala-Gram.
- Measures electrical activity in the neocortex.
- Is fast, simple, and cheap.
- Measures changes in real-time (milliseconds).
- Is low-resolution and can't look into deep brain.
- Activity varies from red and yellow (high) down to blue and black (low).



This is what I have people do.

- Play games, e.g. cards, word games
- Perform physical tasks, e.g. juggling
- Think, e.g. math problems, analogies
- Communicate, e.g. simulated speed dating, role playing with actors
- Recall, e.g. items on list, scene details
- Foresee, e.g. your life 10 yrs from now

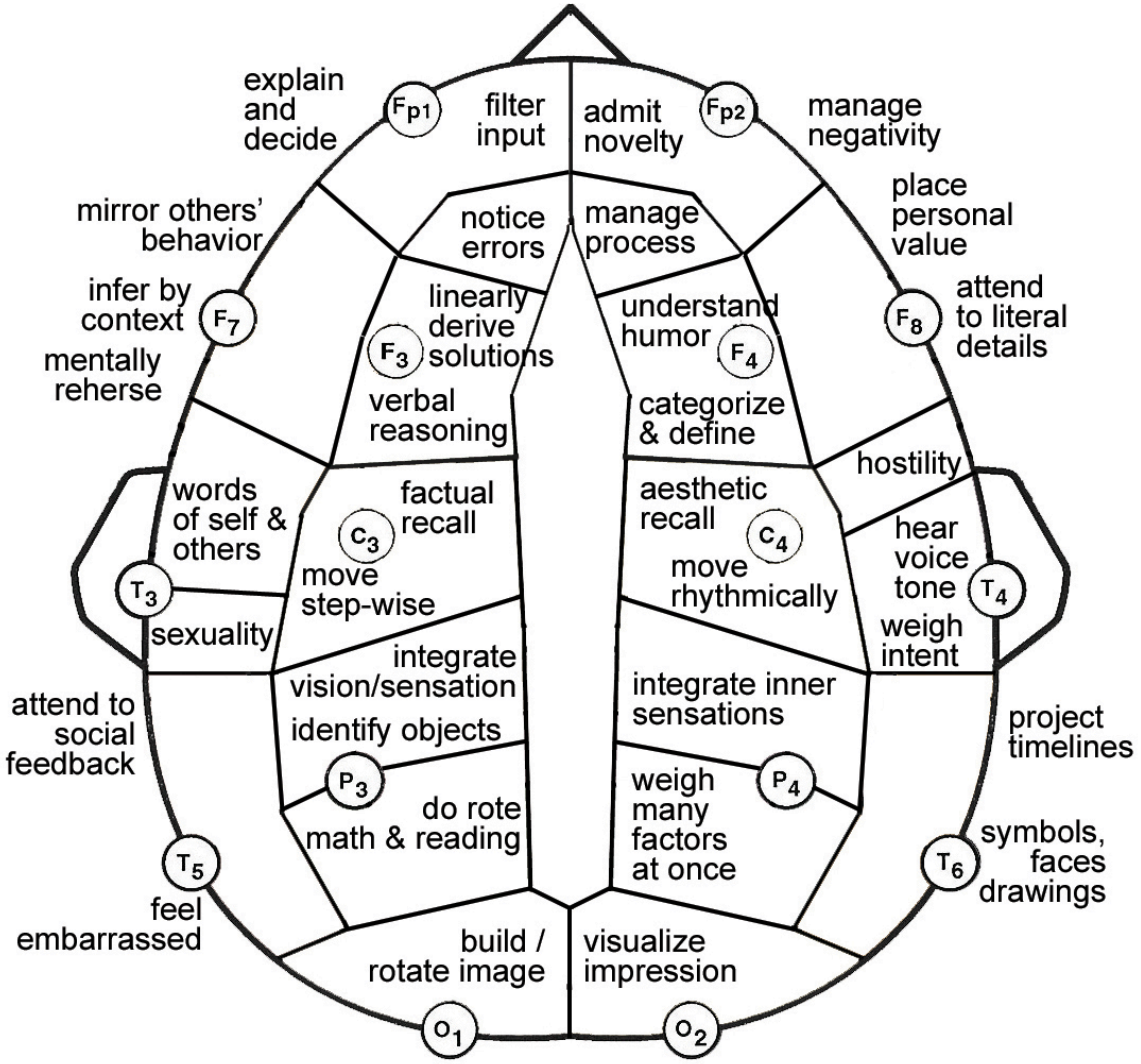
Verbal creativity task

Provide a coherent sentence for each phrase below

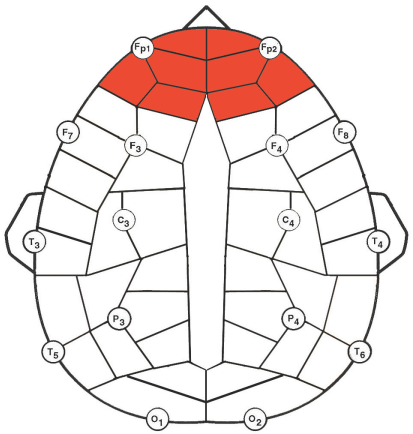
- Dog leash
- Pumpkin seed
- Desktop computer
- Microwave oven
- Book shelf
- First-aid kit
- Fish leash
- Dream seed
- Underwear computer
- Philosophy oven
- Karma shelf
- Conversation kit

Subjects with high trans-contextual thinking craft sentences from the right-hand column phrases more quickly, coherently, and creativity than other subjects.

This is a brain map (birds eye view).



The prefrontal cortex manages the whole brain.



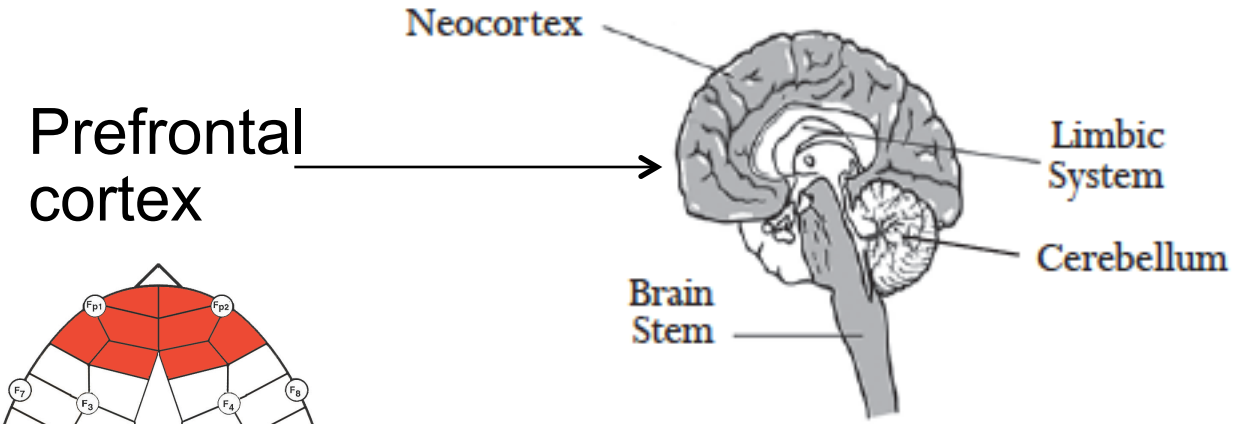
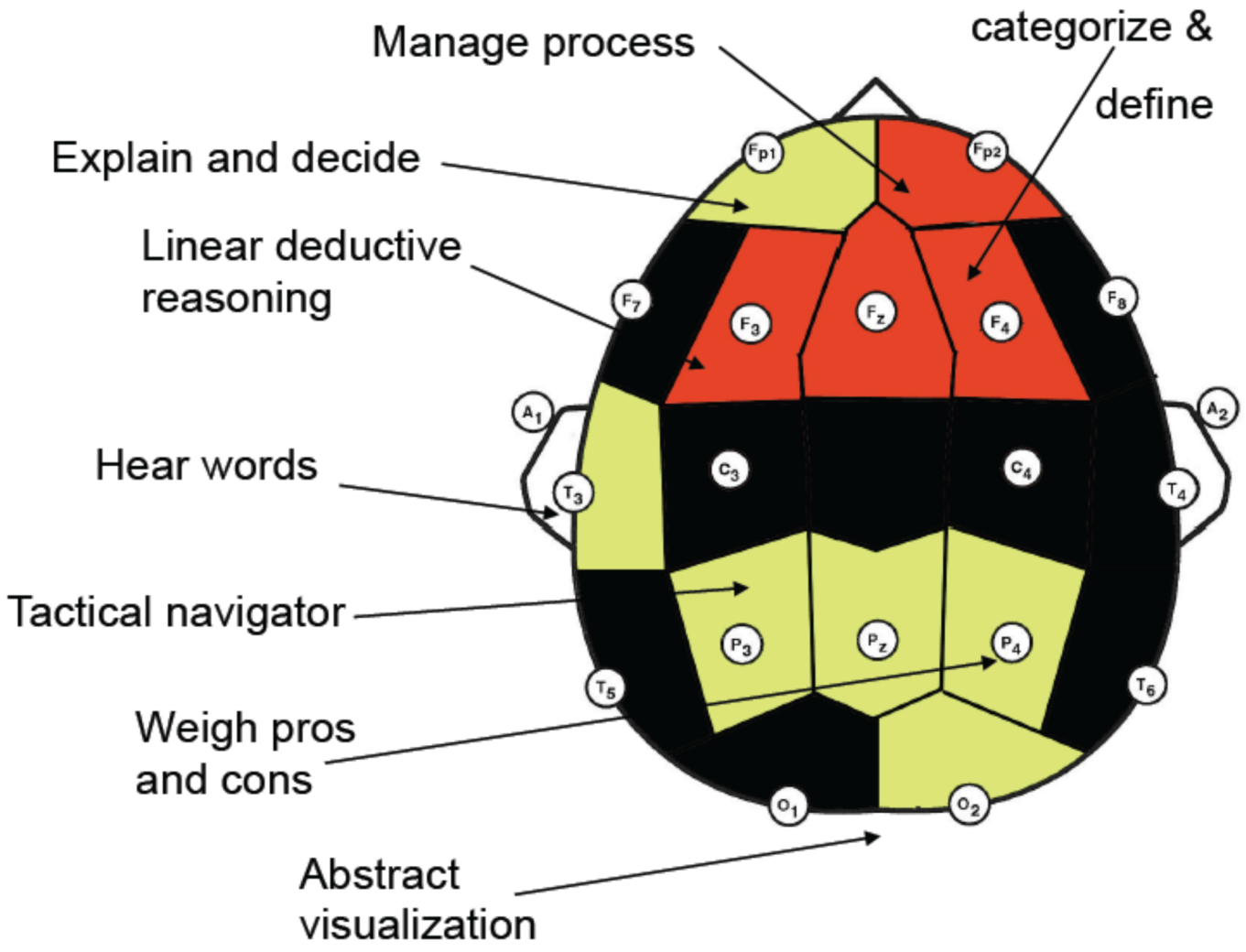
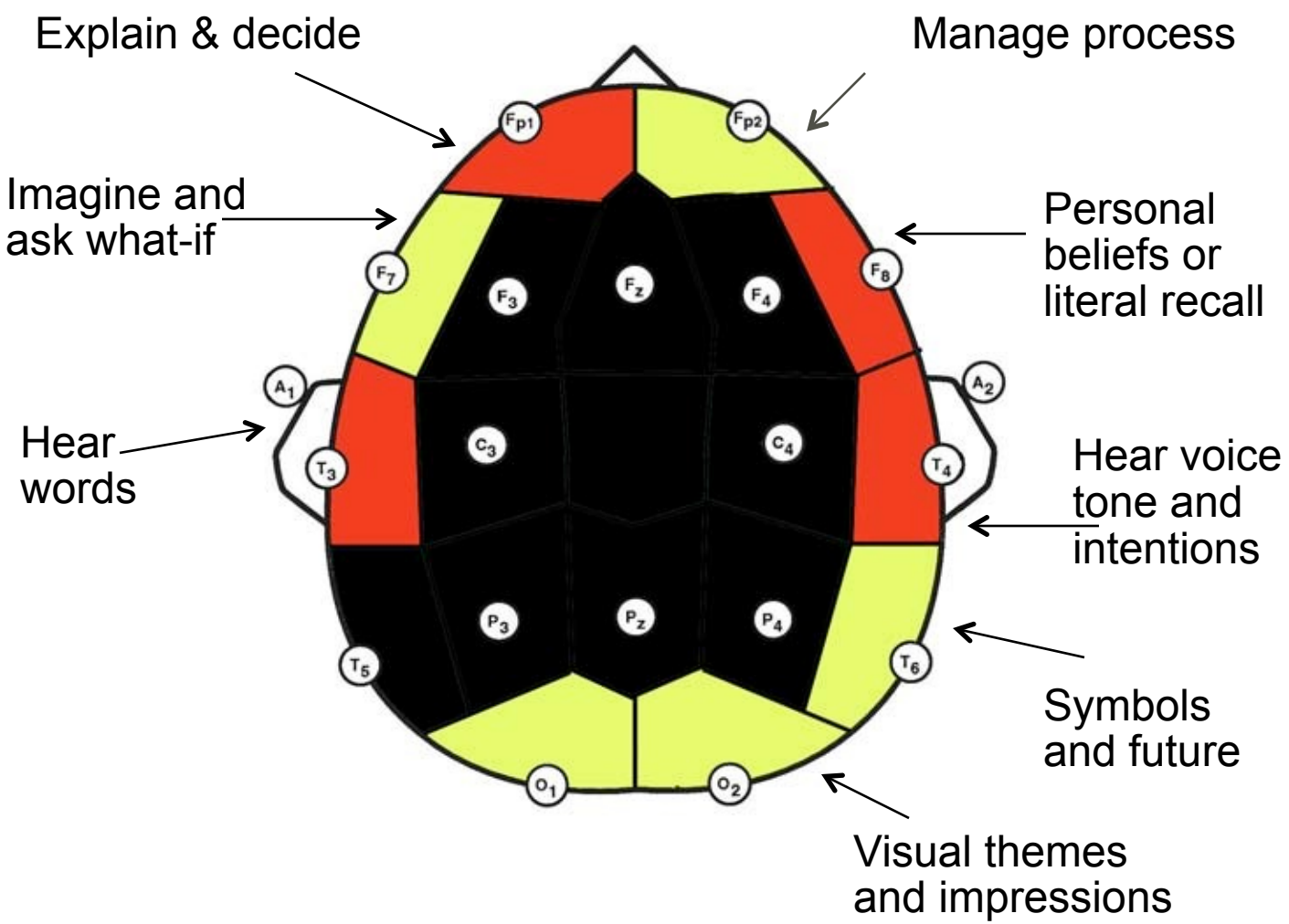


Figure 3-18: A cut-away view of the brain's three layers, seen from the left-side.

Ross– Sorts as personality type ESTP.



Maria – Sorts as personality type INFP.

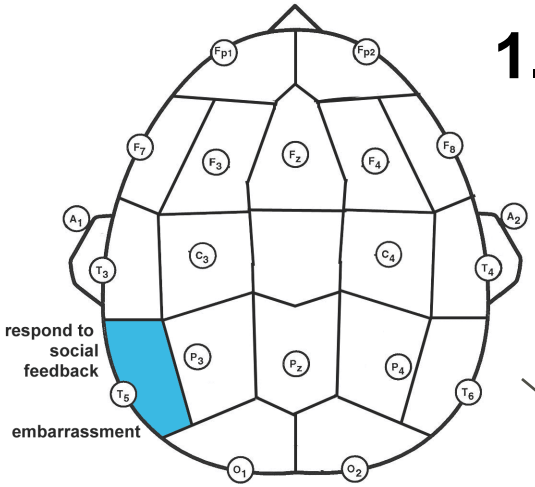


Threshold to Activation

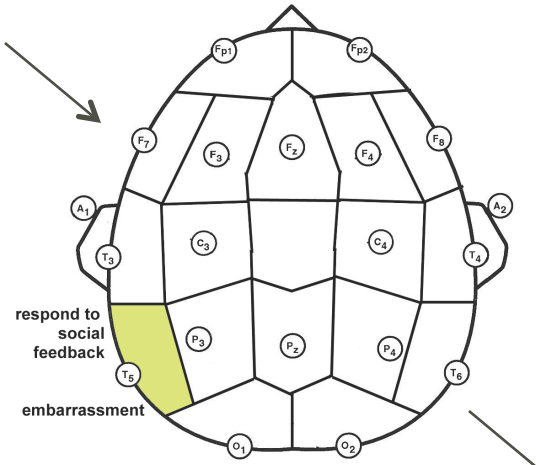
- **Individuality**: For each of us, for each brain region, a different amount of stimulus is needed to activate that region.
- **Low threshold**: Minimal stimulus starts lights region, and activity increases in line with more stimulus.
- **High threshold**: Low stimulus has no effect, and high stimulus initiates a strong, maybe overwhelming response.

An ENFJ gets embarrassed.

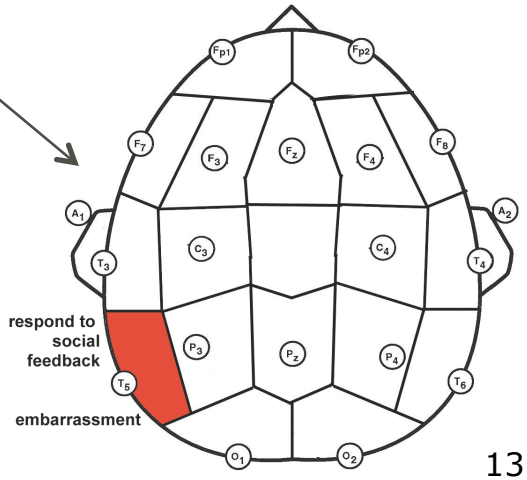
1. Low stimulus



2. Medium stimulus

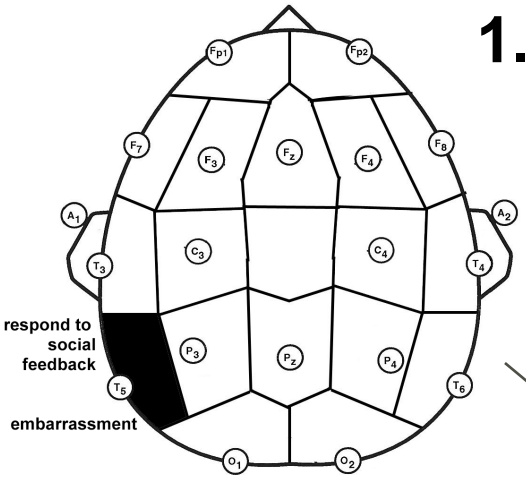


3. High stimulus

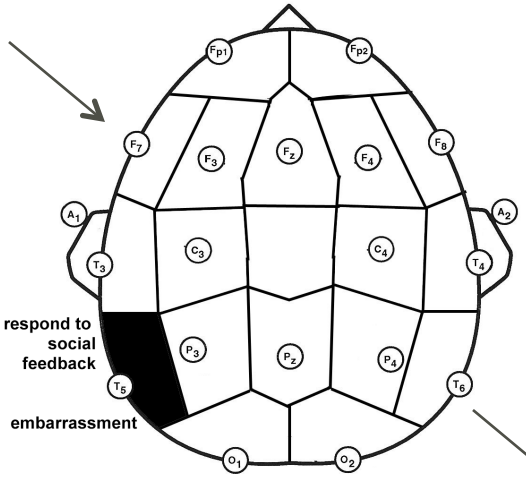


An INTP gets embarrassed.

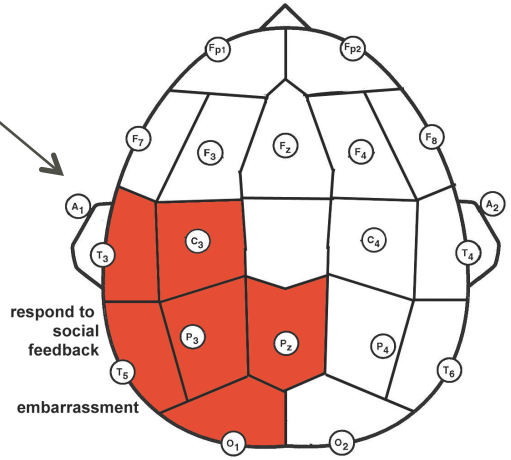
1. Low stimulus



2. Medium stimulus

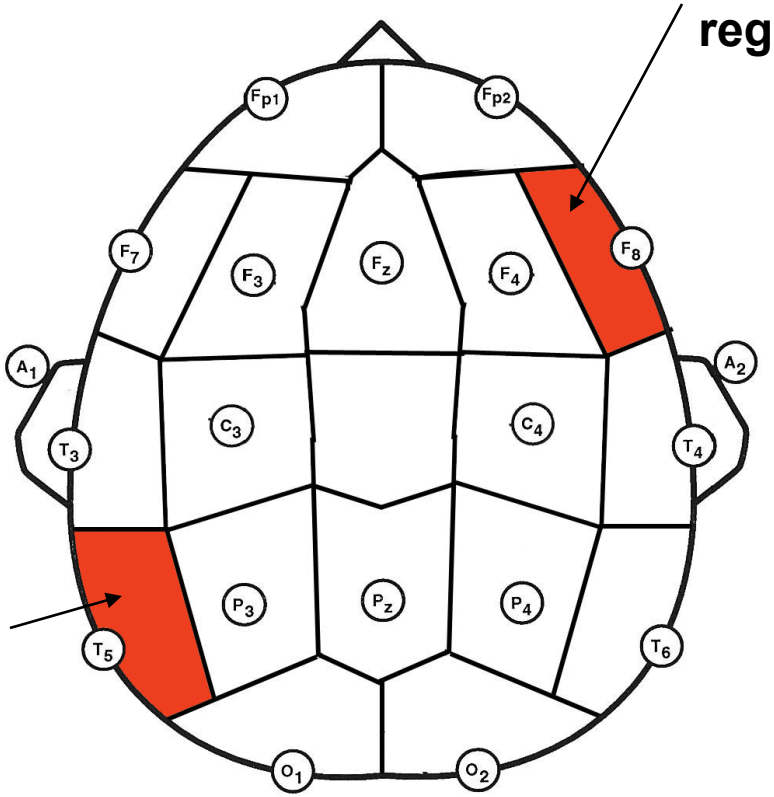


3. High stimulus



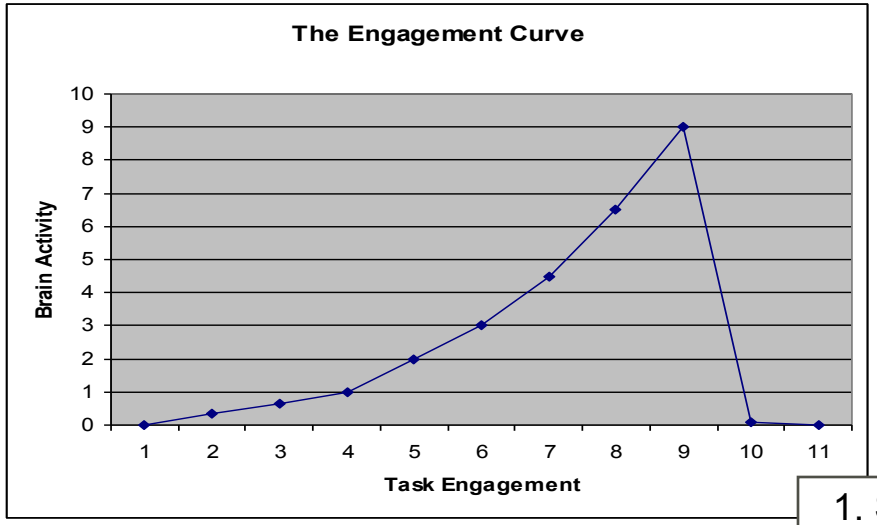
The brain provides multiple ways to meet our needs.

F8: Promotes modesty regardless of context.



T5: Promotes conformity according to current feedback.

The Engagement Curve

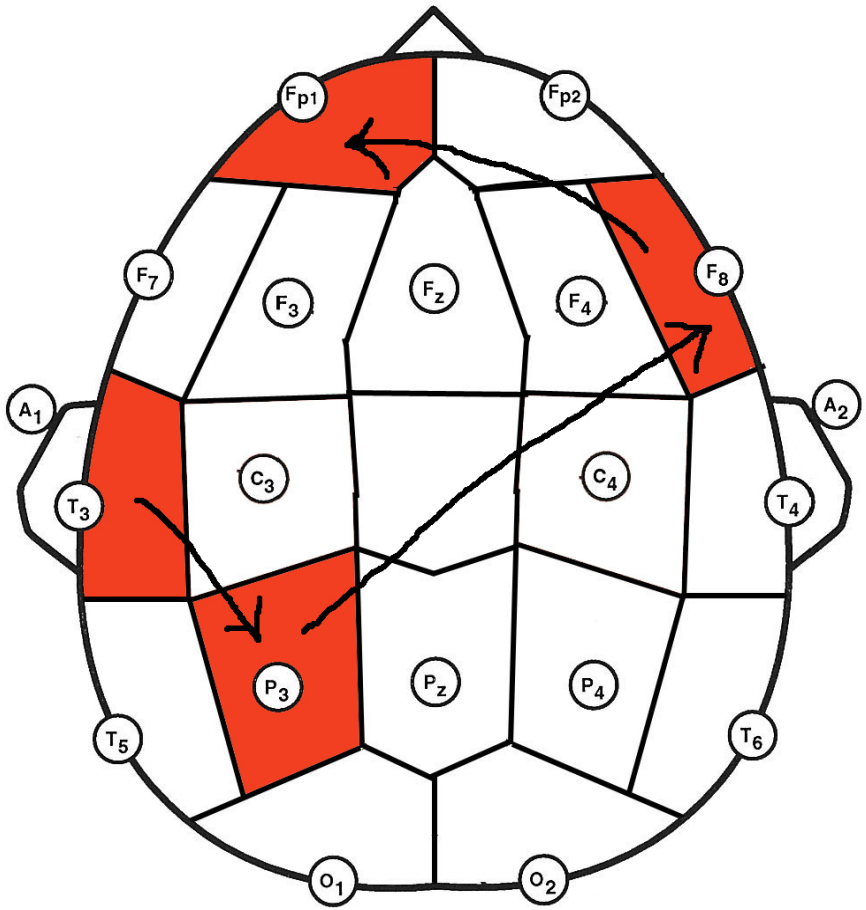


1. Sign your name normally.
2. Sign your name backward with your non-preferred hand to earn $.
3. Sign your name in Urdu.

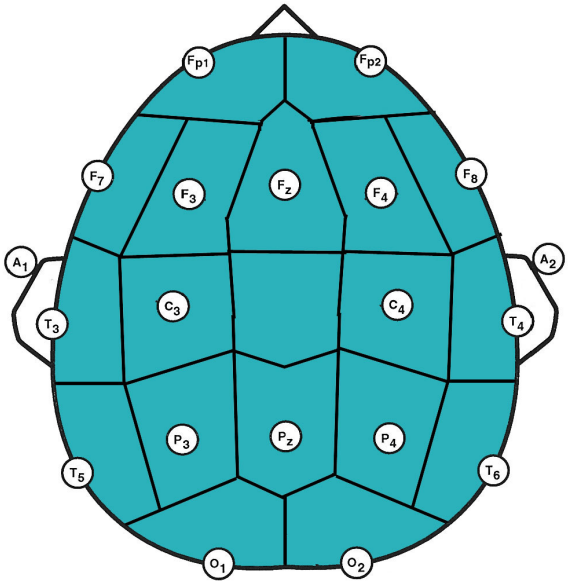
- Engaged = competent and/or motivated
- Engaging activities evoke progressively more brain activity as challenge and motivation increase.
- Unfamiliar / unimportant tasks evoke no activity.

Circuit Patterns

(A dance across the brain in seconds…)



There are whole-brain patterns! Here is a brain in flow – this is steady for minutes when doing a task as an "expert".

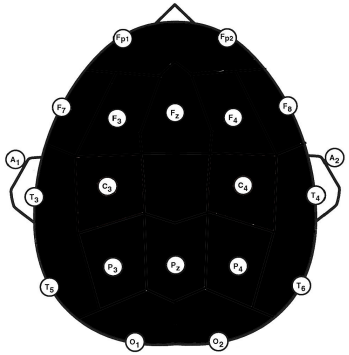


What evokes a state of flow?

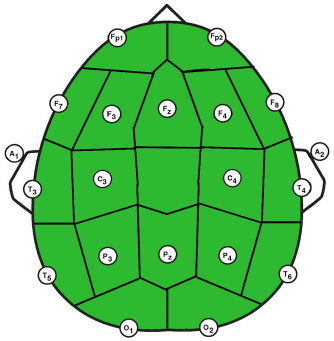
- Handling a crisis during role-play (ESTP, ESFP).
- Reviewing the past in detail (ISTJ, ISFJ).
- Envisioning the future as it will be (INTJ,INFJ).
- Listening activity to others (ISFP,INFP).
- Listening to an authority figure (ESTJ).
- Doing an activity for which you have expertise, or just imagining that (anyone of any personality type).
- Many more….

More Global Patterns…

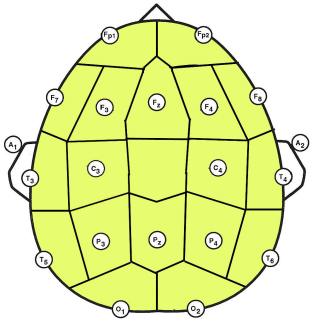
Blank mind, watching TV



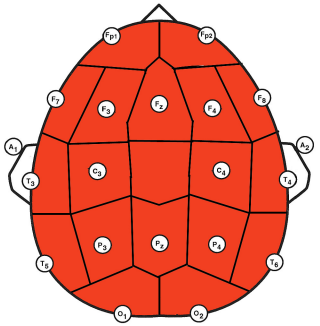
Dislike / disassociated response



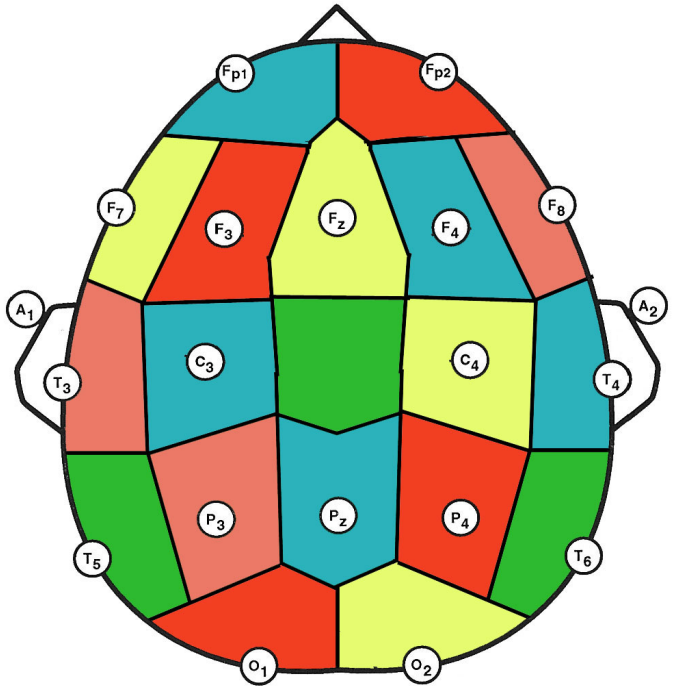
Body sensation / associated response



Hyper-stimulated, learning new game



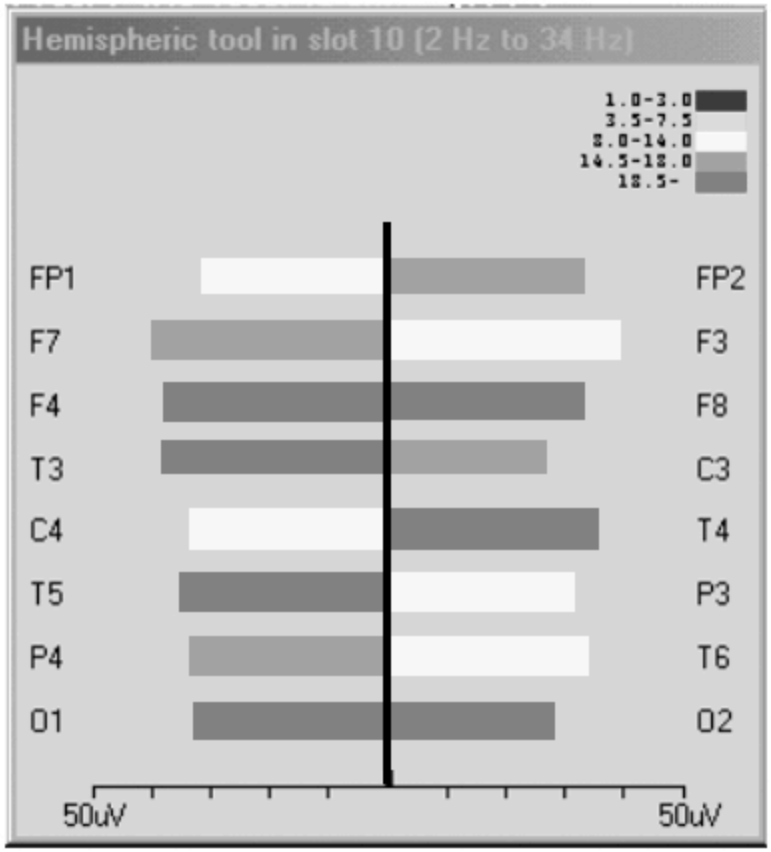
All regions of the neocortex are out of synch.



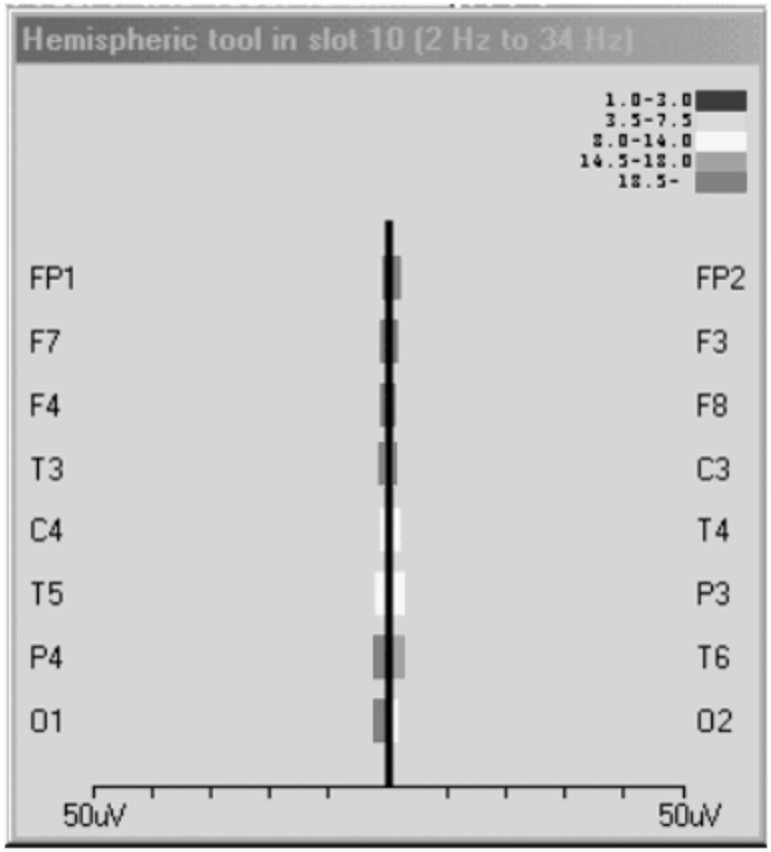
Is this a “Christmas tree” or a “tennis hop” pattern?

Christmas tree Tennis hop

Neocortex activity during "Transcontextual Thinking" as observed Extraverted Intuiting types.



Neocortex activity during "Tennis Hop" mode as observed Extraverted Sensing types.



I observed 8 distinct patterns.

	More left prefrontal activity	More right prefrontal activity
More extroverted	**Expedite Decision-making** **Te**: Use brain regions that promote evidence-based decision-making. (ESTJ and ENTJ) **Fe**: Use brain regions that promote social/interpersonal cohesion. (ESFJ and ENFJ)	**Catalyze the Process** **Se**: Rely on a low-energy mode that affords rapid responses to crises. (ESTP and ESFP) **Ne**: Rely on a high-energy mode that bridges across contexts and ideas. (ENTP and ENFP)
More introverted	**Refine Decision-making** **Ti**: Use brain regions that promote complex/subtle logical reasoning. (ISTP and INTP) **Fi**: Use brain regions that promote listening around identity and values. (ISFP and INFP)	**Track the Process** **Si**: Rely on high specialization from practice to fulfill specific group tasks. (ISTJ and ISFJ) **Ni**: Rely on low specialization with a holistic zen state to do novel tasks. (INTJ and INFJ)

S_E

SPs

1st
ESTP
ESFP
2nd
ISTP
ISFP

Extraverted Sensing: Tips

- Brain gets more active with sensory stimulation such as viewing nature.
- Provide/encourage movement.
- Make ideas meaningful with relevant context, sensory details, physical tools.
- Don't rely on metaphor.
- Focus on challenges, and allow for resourceful responses to crises.

Emotional Dynamics

1. Various neocortex regions generate or enhance particular emotions in order to encourage us to act (or not act) in certain ways, presumably for our survival.
2. People prefer some regions over others.
3. When one region has maxed out its activity, another region takes over.
4. The result: Each of us has a somewhat different set of emotional dynamics.

Managing Emotions

Fp1: Filters out negative information, resulting in lowered self-awareness and also happiness.

Fp2: Manages negative information about oneself, resulting in self-awareness and also sadness.

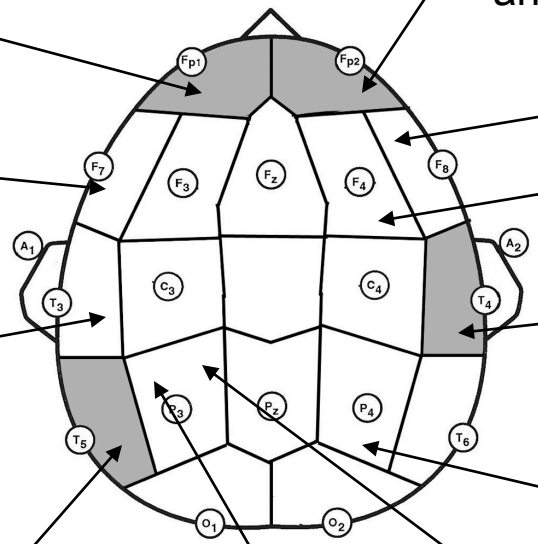
F7: Helps us walk in another's shoes and feel empathy.

F8: Promotes sense of modesty.

F4: Humor!

T3: Helps us regulate sexual impulses. Lack of activity here links to kinky behavior.

T4: If other regions fail to manage negative input, we may feel hostility.



P4: Informs us of our physical mood.

T5: Helps us notice feedback from others and promotes feelings of curiosity shame or embarrassment to help us self-correct and get positive feedback.

P3a: Promotes fear and paranoia by creating a shadowy second-self that seems to follow us.

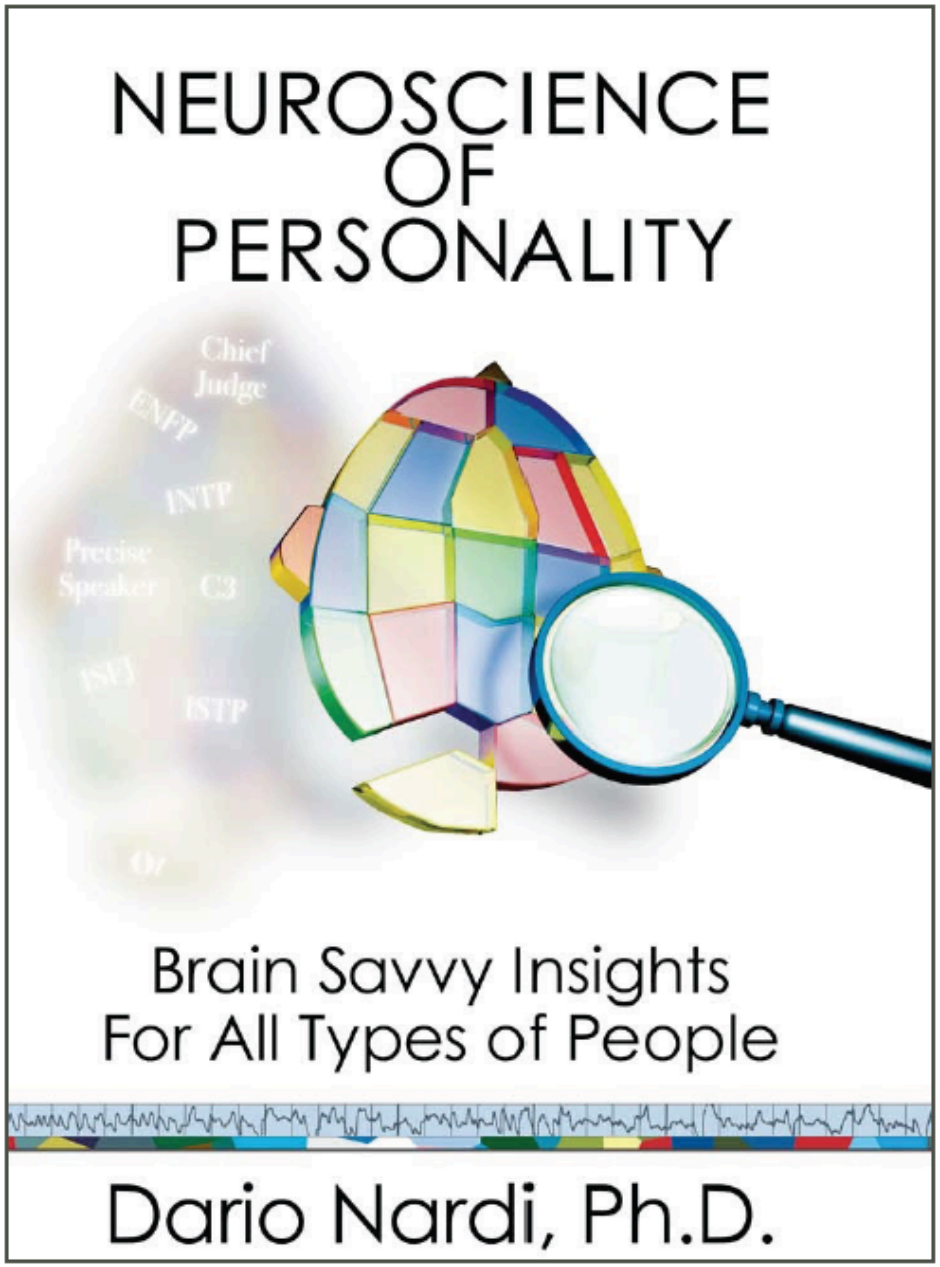
P3b: Promotes a feeling of independence, and lack of activity leads to feelings of oneness with others.

Region T4 helps with humor.

- “Evening news is where they begin with 'Good Evening,' and then proceed to tell you why it isn't.”
- “To steal ideas from one person is plagiarism. To steal from many is research.”
- “A bus station is where a bus stops. A train station is where a train stops. On my desk, I have a work station.”

Here are the key principles.

- The brain is modular.
- There are two executive centers, one of which is dominant.
- Individuals vary in their brain use.
- The are multiple ways to achieve same behavioral result.
- Each region has a threshold to activation.
- Mind the engagement curve.
- There are circuits of activity of afford rapid responses.
- There are whole-brain patterns.
- The brain uses emotions to encourage particular behaviors.
- There is a lot more to keep learning about the brain!



Thank you!

Resources:

http://www.radiancehouse.com

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