The Neuroscience of Possibility

by

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YOU
YOUR FINANCIAL GOALS

THE BRAIN AS BRIDGE
BETWEEN YOU AND YOUR FINANCIAL GOALS
Questions

- Why do things seem impossible?  
  How do you change this?

- How do you get closer to your goals?
Review of Prior Work
What is impossibility?

Inability to conceive of or imagine a situation
Main Lessons

- Things change as you get closer to your goal

- Once you believe something is possible, you try harder
Main Lessons

- Things change as you get closer to your goal
- Once you believe something is possible, you try harder
Examples

- Cannot ever be wealthy enough
- Cannot ever reason with my superiors
- Cannot ever be happy
- Cannot find the perfect partner in life
- Cannot ever be happier than I am currently at work
Probability ≠ Possibility
What if I use probability methods to predict? Should I abandon them?
Often confused with...

- Burnout
- Being Lost
- Giving up or Difficult
- Conditioning
- Depression or Anxiety
- Biased attention
- Difficulty imagining
Impossibility vs. Burnout
<table>
<thead>
<tr>
<th>Impossibility</th>
<th>Burnout</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Have no energy to do it (May not realize this)</td>
<td>Circuits are blown - needs recharging</td>
</tr>
</tbody>
</table>

**Impossibility vs. Burnout**
Impossibility vs. Being Lost
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<th>Impossibility</th>
<th>Being Lost</th>
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<tbody>
<tr>
<td>Cannot be done</td>
<td>Don’t know which way to go</td>
<td>Competing forces</td>
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</table>

**Impossibility vs. Being Lost**
Impossibility vs. Giving Up
<table>
<thead>
<tr>
<th>Impossibility</th>
<th>Giving up or Difficult</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Efforts are frustrated - hopeless</td>
<td>Mental pain</td>
</tr>
</tbody>
</table>

**Impossibility vs. Giving Up**
Impossibility vs. Conditioning
<table>
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<th>Impossibility</th>
<th>Conditioning</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Habit prevents new change</td>
<td>Habit Pathways</td>
</tr>
</tbody>
</table>

Impossibility vs. Conditioning
Impossibility vs. Depression or Anxiety
<table>
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<tr>
<th>Impossibility</th>
<th>Depression or Anxiety</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Prevents new change</td>
<td>Mood disrupts thinking of solution</td>
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</table>

Impossibility vs. Depression or Anxiety
Impossibility vs. Biased Attention
<table>
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<tr>
<th>Impossibility</th>
<th>Biased Attention</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Life looks like what you are looking at</td>
<td>Attentional bias e.g. seeking threat due to fear</td>
</tr>
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</table>

**Impossibility vs. Biased Attention**
Impossibility vs. Difficulty Imagining
### Impossibility vs. Difficulty Imagining

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<thead>
<tr>
<th>Impossibility</th>
<th>Difficulty Imagining</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be done</td>
<td>Cannot imagine effectively</td>
<td>Imagination and movement areas are silent</td>
</tr>
</tbody>
</table>
Brain Imbalance

- Frontal
- Temporal
- Parietal
- Occipital
Brain Imbalance

Possible

Impossible

Possibility Line

FRONTAL  TEMPORAL  PARIETAL  OCCIPITAL
Conclusion

Impossibility = Brain vulnerability
<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Solution</th>
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<tbody>
<tr>
<td>Burnout</td>
<td>Treat cause e.g. Work overload</td>
</tr>
<tr>
<td>Being Lost</td>
<td>Re-evaluate direction e.g. Resolve conflicts</td>
</tr>
<tr>
<td>Giving Up</td>
<td>Time-out e.g. New direction</td>
</tr>
<tr>
<td>Habit</td>
<td>New habit e.g. Repeated practice</td>
</tr>
<tr>
<td>Mood</td>
<td>Treat mood e.g. Anxiolytic</td>
</tr>
<tr>
<td>Attention</td>
<td>Redirect attention e.g. Optimism</td>
</tr>
<tr>
<td>Imagination</td>
<td>Image exercises</td>
</tr>
</tbody>
</table>

**Approach**
Poll Results
Commonest causes:

- Depression and Anxiety (276)
- Biased Attention (267)
- Conditioning (263)
Poll Review

No. with highest scores

- Depression and Anxiety (10)
- Conditioning (8)
- Biased Attention (7)
Poll Review

Lowest scores

- Difficulty imagining (215)
- Feeling lost (234)
- Task difficulty (236)
Depression and Anxiety
Depression and Anxiety

- See a psychiatrist
- Positive affirmations
- Emotional introspection
- SAFE FRAME
See a psychiatrist

- Medical
- Psychological
- Emergency
Positive affirmations

- Diary
- Gratitude
- Focus (a feeling is where you look)
Emotional introspection decreases amygdala activation.
PFC Interventions

Safe FRAME

• Re-Solve existing conflicts
• Re-Assess the situation
• Re-Focus after a brief rest
• Re-Engage relevant people
• Re-Frame the problem and solutions
The Pitfalls of Self-Regulation
Self-regulation

DLPFC = Thinking

Amygdala = Fear
Brake pads are worn out

DLPFC = Thinking
Amygdala = Fear

“First I control things – then they control me”
SRD = Self-regulation depletion

DLPFC = Thinking

Amygdala = Fear
Controlling attention while watching video
Controlling attention while watching video

Ignore victims of tragedy
Trying to regulate emotional response while watching video
Trying to regulate emotional response while watching video

Decreased physical stamina
Amygdala

PFC

Worse at logic and cognitive extrapolation
Worse at thoughtful comprehension
General knowledge remains intact
Relevance

• People tend to regulate themselves when they are faced with cognitively demanding risks

• This may actually decrease your fitness for decision-making – decreased PFC function
Biased attention
Who is correct?

Optimist

Pessimist
ATTENTIONAL UNITS IN THE BRAIN
ATTENTIONAL UNITS IN THE BRAIN
What if I don’t reach my goal?

FEAR

ATTENTIONAL UNITS IN THE BRAIN
ATTENTIONAL UNITS IN THE BRAIN

WAYS TO REACH MY GOAL

REFOCUS

THREAT
Refocus Techniques

- “Drop it like it’s hot”
- Watch it rather than being it
- Repetition compulsion reversal (Serena Williams)
- Turn the magnifying glass over
Conditioning
Difficult to unplug old connections
Lay down new pathways
Brain-Based Insights
Resolution of Cognitive Dissonance

LEFT FRONTAL CORTEX
Spreading of Alternatives
Definition

Work demands vs. Inner resources
Stages of Burnout

1. Plastic Smile
2. First Crack
3. Alice in Wonderland
4. Fading light at the end of the tunnel
5. Dropping Out
6. Dread
7. Physical and emotional exhaustion
Hard time staying positive
Beginning to “lose it”

First crack
Fading light at the end of the tunnel

No value or hope
Dropping Out

Feel more isolated
Can’t stand the thought
Physical and Emotional Exhaustion

Can’t get out of bed
Causes of Burnout

1. Work overload
2. Lack of control
3. Insufficient reward
4. Breakdown in community
5. Absence of fairness
6. Conflicting values
What if things just don’t change and you have to tap into mechanisms to be resilient?
Primary Principle: Refocus
Why refocus?
What you water grows
How to refocus

1. Practice internal shifting at stress points
2. External directional practice
Resolve conflicts
Why resolve conflicts?
Conflicts eat brain energy
Learn to bend in the wind
How to resolve conflicts

Use the CEO approach
How can you use your brain to bend in the wind?
Orbitofrontal cortex
Ways to “bend” your brain

1. Meditation
2. Problem (flexibility) exercises
3. Creativity exercises
OFC

- Effortful emotion regulation
- Anticipating reward
- Exercise/dance
Action items

- Ignore the “how”
- Describe the “what” in detail
- Refine and visit every day
- If the how reveals itself, make a note but always do a soft landing
There are those who look at things the way they are, and ask why... I dream of things that never were, and ask why not?

Robert F. Kennedy
The End