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Ethics and the Brain

Decrease Stress and Increase Focus
on Fraudulent Behavior

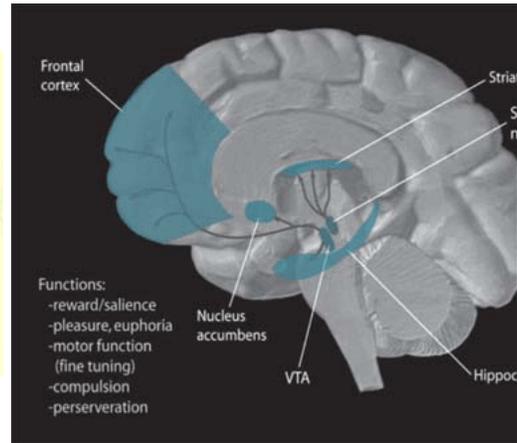
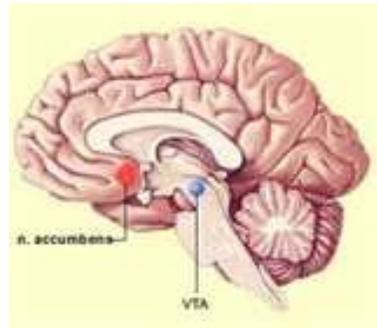
Topics to Cover

- ▶ Fraud and the brain
- ▶ Can we stop fraud?
- ▶ Decrease stress and increase focus on preventing fraud
- ▶ Creative problem solving
- ▶ Take home material
 - Sleep/De-Clutter Your Desk & Mind

What Goes On Inside the Brain of Someone Committing Fraud?

- ▶ Striatum
 - Nucleus Accumbens
- ▶ Intraparietal Sulcus
- ▶ Amygdala
- ▶ Pre-Frontal Cortex
- ▶ Striatum
 - Caudate Nucleus
- ▶ Anterior Cingulate Cortex
- ▶ Anterior Insular Cortex

Striatum: Nucleus Accumbens



What Does the Nucleus Accumbens Do?

- ✕Food
- ✕Water
- ✕Sex
- ✕Money
- ✕Risk

Nucleus Accumbens

- ▶ What does this have to do with fraud?

What Else Does the NA Influence?

- × Shopping
- × Overeating
 - × Rats will eat junk food and ignore healthy foods even when shocked
 - × Rats brains developed a tolerance to junk food
 - × Desensitized their dopamine receptors
 - × Less dopamine receptors may increase addiction
 - × What does desensitization have to do with fraud?

Nucleus Accumben's Influences

- × Checking e-mail
- × Anticipation is greater than the reward

Nucleus Accumbens

- × Brains center for emotional rewards
 - × Triggers a feeling of greed from just getting the chance to win
- × NA responds before the pre-frontal cortex is aware of the potential for winning
- × NA flares as if you are on cocaine
- × How does this relate to fraud?

Nucleus Accumbens and Shopping

- × Nucleus Accumbens is activated
 - × Window Shopping
 - × Going through circulars
 - × Just the thought of shopping
- Anticipation is more powerful than actually shopping
- Dopamine interferes with decision making

How to Control Spending

- × Shop with Cash
- × Buy only items on your shopping list
- × Shop without your wallet or window shop
 - × Make purchase 24 hours later
- × Don't shop when visiting friends or relatives
 - × Added novelty leads to impulse buying

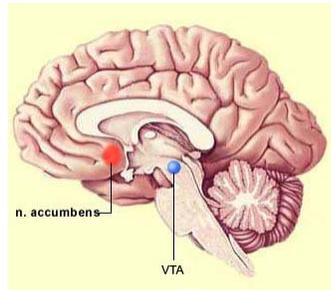
Rats are affected by Novelty

- × Rats walking around a maze
 - × Dopamine rises with new compartments
 - × We are rats when we shop in a new location
 - × New locations reduce rational thinking
 - × Impulse buying rises

Evolution

- × Nucleus Accumbens kept humans motivated long enough to earn food, shelter and a spouse

Nucleus Accumbens



Nucleus Accumbens & Ventral Tegmental Area

Plays a role in the reward circuit

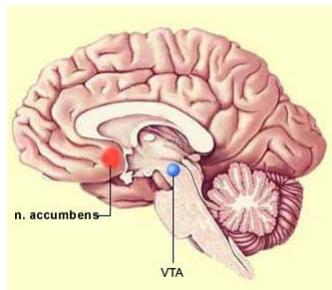
Neurons of the VTA synthesize dopamine

Axons send dopamine to Nucleus Accumbens

Reference

× <http://www.ncbi.nlm.nih.gov/pubmed/18675281#>

Nucleus Accumbens



Nucleus Accumbens

- × Reward center of the brain
 - × Dopamine increases in the NA
 - × Cocaine
 - × Money
 - × Pretty Face
 - × Funny Joke
 - × Investing in a “hot” stock
 - × Fraud

Pleasures and Reward

- × Dopamine Neurons projects to
 - × Prefrontal cortex
 - × Nucleus Accumbens
 - × Striatum
 - × Amygdala

Nucleus Accumbens

- ▶ Brains center for emotional rewards
- ▶ Triggers a feeling of greed from just getting the chance to win
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When you Win the Lottery

- ▶ You don't think of the negative when you buy a lottery ticket.
- ▶ You are still in the dream state. After you win now you have details to contend with

Thrill Seekers

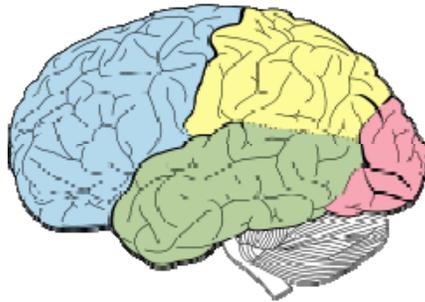
- ▶ Big lifestyles
 - Bonnie and Clyde

Entitlements

- ▶ Which situation would make you happier?
 - Silver vs. bronze
 - Missing a bus by 1 minute vs. 20
- ▶ Why should a VP steal when they are doing better than the other employees

Intraparietal Sulcus Located

- ▶ Parietal Lobe
 - Yellow lobe



Caveman

- ▶ Constantly Evaluating Risk
 - Going out of the cave is risky
 - Not eating or drinking is risky
 - Constantly evaluating risk
 - Your ancestors were gamblers

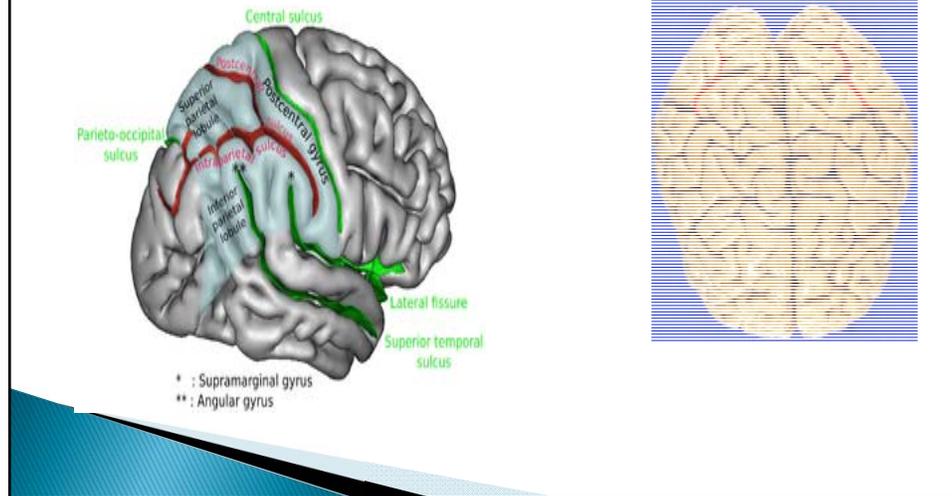
Gambling

- ▶ You are guaranteed to win \$100
- ▶ Would you take the chance to double \$100 with the risk of losing it all?
- ▶ The Intraparietal Sulcus fires with the chance of losing it all
- ▶ Why will some people double down?
- ▶ Helps us Imagine the Outcome of Future Events
 - The gambling sets off intense images of fear
 - Most will favor the sure thing

Gambling and the Intraparietal Sulcus

- ✕ Who will be more addicted?
 - ✕ The winner
 - ✕ The gambler who almost wins

Intraparietal Sulcus



Intraparietal Sulcus

- ▶ Sure loss of \$100
- ▶ You can try to break even but risk losing \$200
 - Intraparietal Sulcus fires at losing \$100 or \$200
 - The Intraparietal Sulcus does not fire with the chance of breaking even
- ▶ Most will prefer the chance to break even
- ▶ This is why investors don't want to sell a losing stock

Amygdala and Pre-Frontal Cortex

- ▶ Did you ever notice you give advice but can't help yourself?

Amygdala

- ▶ Does not like pain

Fear

- ▶ What are they scared of?
 - Being broke
 - Losing their job

- ▶ Which part of the brain responds to fear?
 - Amygdala

White Lies

- ▶ Amygdala becomes desensitized with each lie

Fraudulent Behavior

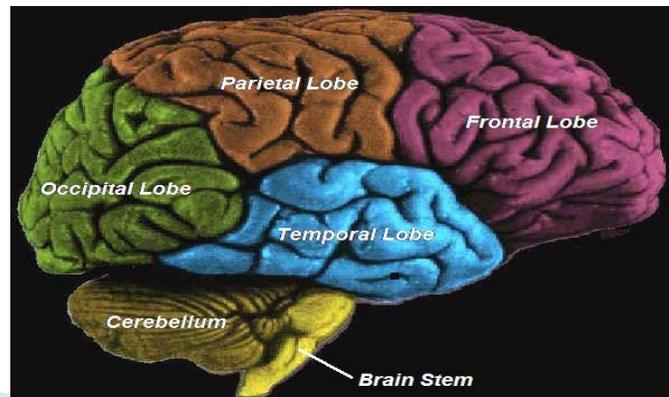
- ▶ Overactive amygdala
- ▶ Underactive amygdala

Pre-Frontal Cortex

- ▶ Can't pass the marshmallow test
- ▶ The executive of the brain

Pre-Frontal Cortex

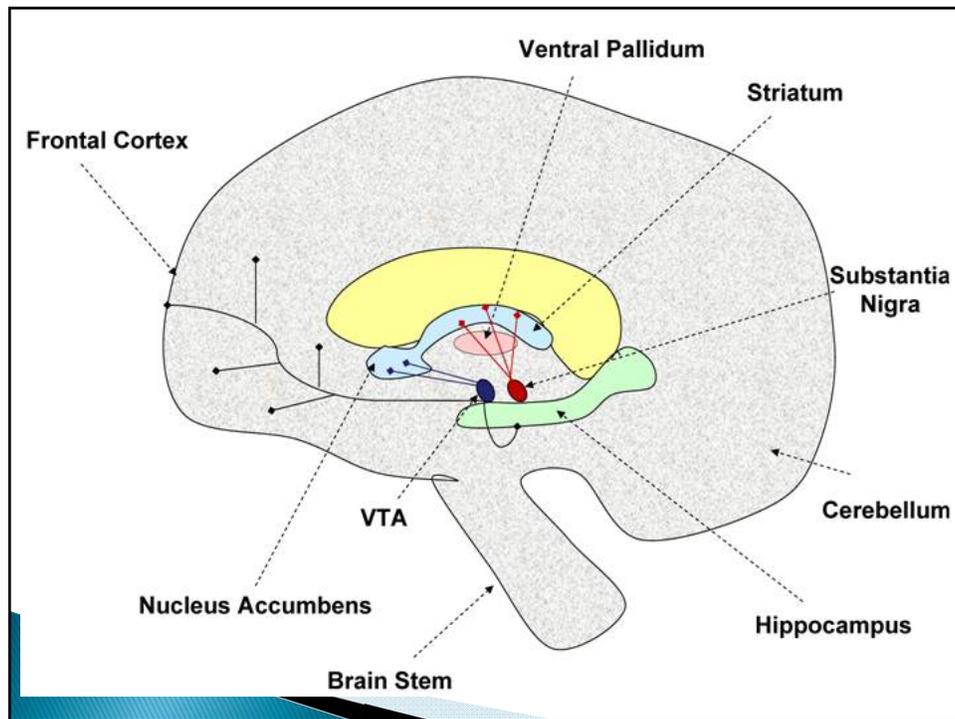
- ▶ Pre-frontal Cortex



Striatum-Caudate Nucleus Anterior Cingulate Cortex Insular Cortex

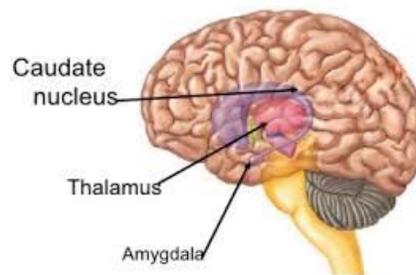
- ▶ Cognitive Dissonance
 - The fox and the sour grape
 - Fixing a bridge correctly or using duct tape





Caudate Nucleus is Found Within the Dorsal Striatum

- ▶ Decision Making, choice & expected outcomes
- ▶ Law of diminishing returns
 - We get used to bad things happening



Striatum

- ▶ What does the striatum have to do with cognitive dissonance and fraud?
 - Look in the mirror
 - The more you commit the crime the less it bothers you over time

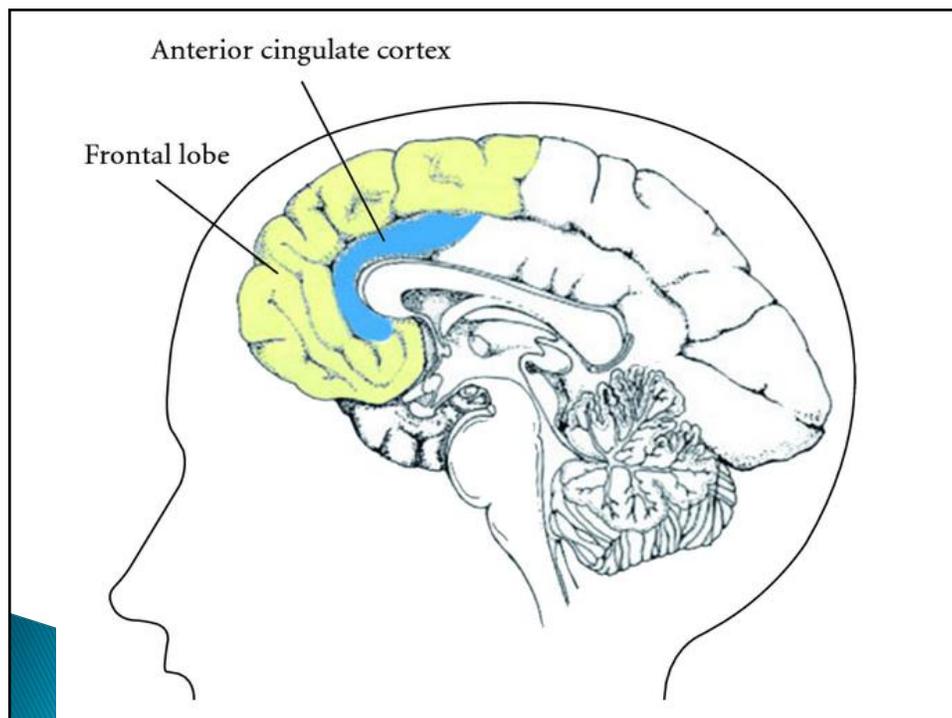
Anterior Cingulate Cortex

- ▶ Error Detection
 - Stroop Test

PURPLE YELLOW RED
BLACK RED GREEN
RED YELLOW ORANGE
BLUE PURPLE BLACK
RED GREEN ORANGE

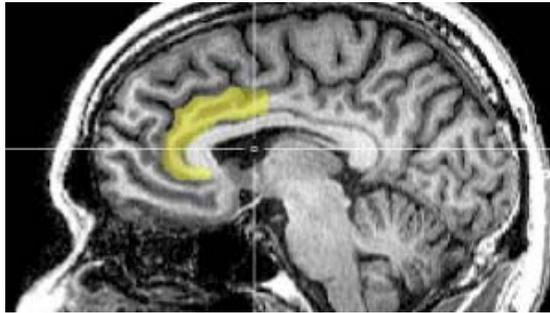
Anterior Cingulate Cortex Error Detection

- Gut reaction
- Monitors conflict
 - Error detection
 - Moral dilemmas
 - You don't want to steal but "you need the money"
 - Acts as the jury between the amygdala and pre-frontal cortex. It's the voice of reason
 - Activity increases with how strongly they experience cognitive dissonance
- Dorsolateral Pre-frontal cortex is the home of Cognitive dissonance reduction



Anterior Insular Cortex

- ▶ Feelings



Rationalization

- ▶ What is cognitive dissonance?
- ▶ What is cognitive dissonance reduction?
- ▶ Which part of the brain is responsible for this?

Rationalization

- ▶ Bank Fraud
 - I didn't steal from anyone. I just took it from the bank
 - I just took a pencil

Is It Stealing If I Didn't Take Money?

- ▶ Pencil from work
- ▶ Tokens, mortgage backed security's

Lying

- ▶ Evolution of lying
 - White lies
 - Liars were more successful
 - Detecting liars prevented you from being taken advantage of
 - Arms race
 - Lying starts at 6 months old
 - Crying
 - First or second time they cried?

Lying

- ▶ Pathological liars
- ▶ 25 % more white matter
 - Connections are fast to sustain the lie
 - Keeps information so they can sustain the lie
 - Believe what they are saying
- ▶ 14% less gray matter
 - Difficult seeing consequences

Creative People Cheat More

- ▶ How to benefit and still feel good looking in the mirror?
 - More creative at telling yourself a story about how you should feel good about yourself

Detecting a liar

- ▶ To be totally honest I did not take your cell phone from that cell phone charger
 - Believe me/to be totally honest/in all candor
 - Distance themselves from the situation
 - That charger instead of this chair
 - Full sentences vs. contractions
 - Smile when they are done telling a story
 - Excessive eye contact

How do Good People Slide Into Fraud?

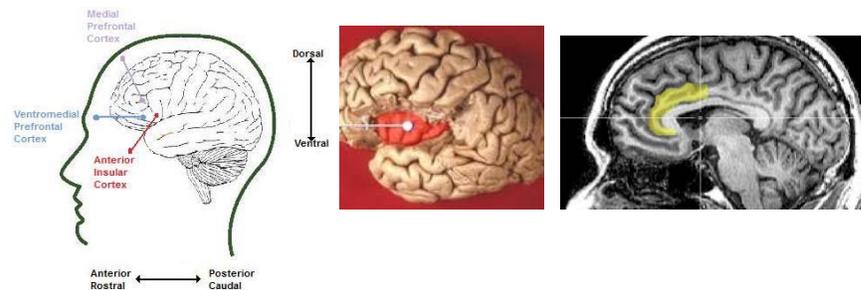
- ▶ Framing
 - Two groups of subjects presented with an opportunity to cheat
 - Think ethically
 - Think about a business decision
 - They developed two different mental checklists

Current Events in Fraud

- Don Tollefson had a fake charity
 - Used charity donations to pay for home water bills
 - Said he was entitled because he had a home office
 - He also ran out of money; he was a bad businessman
 - Cognitive dissonance reduction
- Madoff
 - Empathy
 - Mirror neurons
- Tax Fraud

Empathy

▶ Anterior Insular Cortex



Anterior Insular Cortex

- ▶ Love
- ▶ Food Poisoning
- ▶ Roaches

Psychotic Behavior

- ▶ Psychopaths imagined pain to themselves and there was a typical neural response
 - Anterior Insula
 - Amygdala
 - Midcingulate Cortex
 - Emotion, pain and goal oriented behavior
 - Somatosensory Cortex
 - Pressure receptors, heat receptors

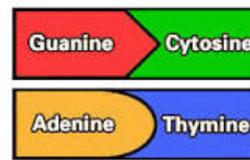
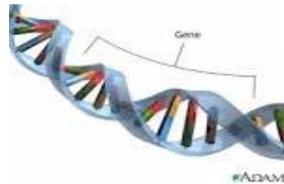
- ▶ Psychopaths imagined pain to others
 - Low activity to all these brain areas
 - Higher activity in nucleus accumbens

What Causes Psychotic Behavior

- ▶ Nature or Nurture?

Chronic Stress

- ▶ Inflammation rises
- ▶ Immune system is compromised
- ▶ Genes are turned on and off

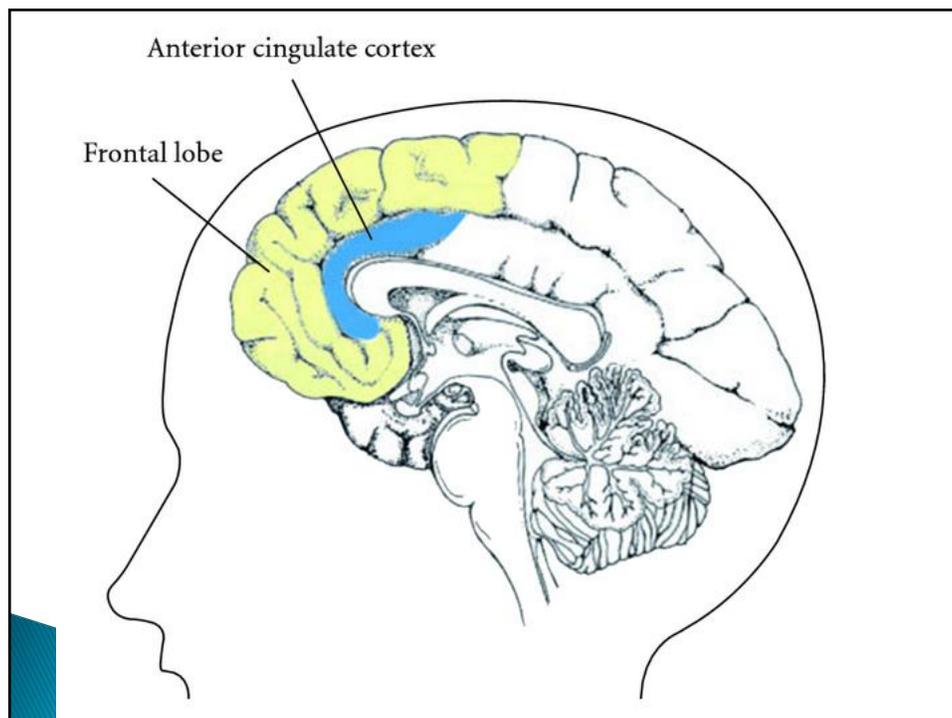


MAO-A Gene Monoamine Oxidase

- ▶ Warrior Gene can get turned on with troubled childhood
- ▶ Regulates serotonin in your brain
 - Brain won't respond to the calming effects of serotonin
 - They become aggressive very easily
 - Isolated
 - provoked
- ▶ Reduced volume and activity of the anterior cingulate Cortex

Anterior Cingulate Cortex

- Activity increases with how strongly they experience cognitive dissonance
- Gut reaction
- Monitors conflict
 - Responsible for solving moral dilemmas
- Responsible for regulating impulsive aggression
- Acts as the jury between the amygdala and pre-frontal cortex. It's the voice of reason



High MAO-A Gene

- ▶ Lowers serotonin
 - Depression
 - Sleep disorders

Low MAO-A Gene (Warrior Gene)
Abused as children

- ▶ High Serotonin
- ▶ High Testosterone
 - Aggressive

Difference Between Sympathy and Empathy

- ▶ Sympathy
- ▶ Empathy

Developing Empathy

- ▶ Birth
- ▶ Childhood
- ▶ Adult
- ▶ Improving Empathy
 - Label your emotions
 - How empathetic are you?

Bias

- ▶ You being late vs. your friends being late
- ▶ You taking a pencil vs. your co-worker
- ▶ You not returning change from the grocery store vs. a bank customer not returning \$10,000 added to their account

Life Quandary

- ▶ How to lie and still think of ourselves as good people

What is the Cure to Prevent Fraud?

▶ Empathy

Preventing Fraud

- ▶ Moral reminders
 - Recall 10 commandments
 - Swear on the bible
 - Talk about morality
 - Sign at the top of a document

Preventing Fraud

- ▶ Use Plainer English
 - A letter sent to non-payers of vehicle taxes
 - Pay your tax or lose your car
 - Doubled the number of people paying the tax
- ▶ In some cases the letter was personalized
 - Included a photo of the car
 - Tripled the number of people paying the tax

How to Prevent Fraud

- ▶ Non religious confession helps
- ▶ Declare what you've done badly so you can start a new page
 - Here are all the bad things I have done and tomorrow I will start over

How Can Organizations Prevent Fraud?

- ▶ Strict rules
 - Tax code isn't gray
- ▶ Alcoholics Anonymous
 - No drinking vs. ½ glass a day max
 - Large glasses
 - I'm not drinking today I'll drink twice tomorrow

What the Heck Effect

- ▶ Small cheating leads to a paradigm shift
- ▶ Dieting
 - ▶ 1 muffin can lead to an open buffet
 - I'm not a dieter
- ▶ We think of ourselves in binary terms
 - I'm either good or bad
 - 92% good I'm a good person
 - 78 % percent good ... is it worthwhile to moving to 82?
 - Just go all the way and enjoy it

Set Expectations for the Behavior You Want

- ▶ A
- ▶ B
- ▶ C

How to Decrease Stress and Increase Your Focus on Fraudulent Behavior

- ▶ How that might assist you with fraud investigations

Stress

- ▶ Positive and negative stress
- ▶ Work related stress
- ▶ Type A and B personalities

Exercise

Posture
Improve compliance

Science behind stress reduction techniques

Passive observation
Letting go of control

Exercise

Food and Nutrition

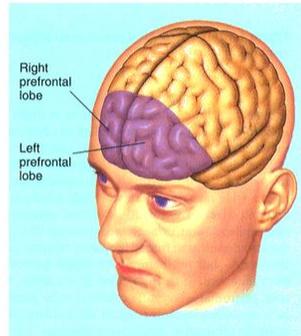
- ▶ Overcome cravings

Depression to Happiness

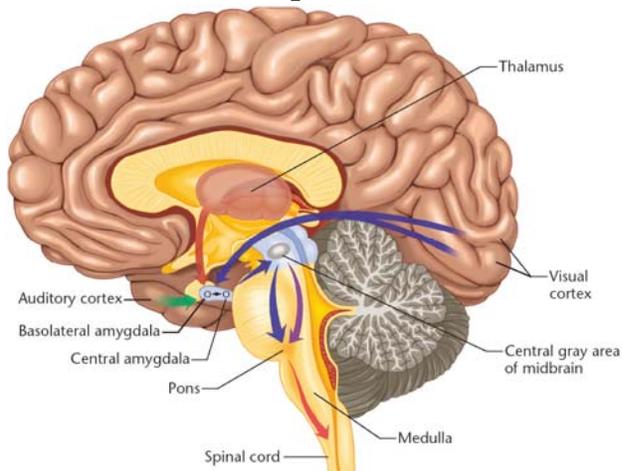
- ▶ Positive thoughts lead to positive results

Rational Thought

► Prefrontal Lobes



Anatomy of Emotion



Three Levels of Communication

- ▶ Content
- ▶ Emotion
- ▶ Power

Negotiation

- ▶ Sit side by side
- ▶ Marriage encounters
- ▶ 10 point system of coming to an agreement

Creativity and Strategic Thinking

Utilizing Creativity to Promote Team
Building and Mediate a Dispute

Parallel Thinking

Facts

Positive Thinking

Creative Thinking

Reversal

Juxtaposition

Negative Thinking

Emotional Thinking

Overview

What Does Comedy, Creative Thinking and Problem Solving have in Common?

Reversal

Jokes

Credit Card Companies and Creativity

Health Insurance Companies and Creativity

Ketchup Bottles and Creativity

Preventing Crime with Creativity

Problem Solving at Work

Lateral Thinking Juxtaposition

Joke

Stop Highway from Drivers Going the Wrong Way
Making Money on Post Office Stamps

What Situations Arise at Work

- 1. Reducing crime in Philadelphia
- 2. How grandmothers influenced teenagers dress code
- 3. Vendors prevented groups from forming
- 4. Residents wandering off in a nursing home

How to Stop Residents from Wandering Off

- ▶ Fake Bus Stop in Germany



Lateral Thinking & Creativity

Creativity while talking or E-mailing

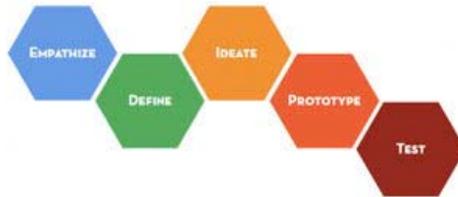
Influenced by who you are talking to or E-mailing

Empathy and Mirror Neurons

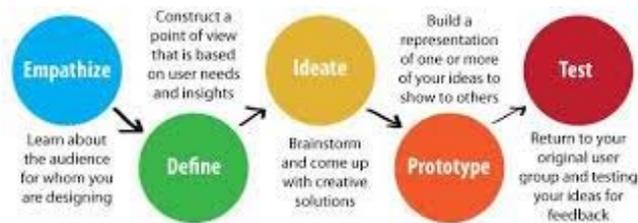
- ▶ What is empathy?
- ▶ Mirror neurons in a social situation
- ▶ Monkey see monkey do
- ▶ Have empathy for customers and employees

- ▶ Using Strategic Thinking for Problem Solving

Frame/Risk/Choice



Framing/Risk/Choice



Getting Along with Others at Work

Let's get Along with Others

- ▶ Why are co-workers different?
 - Animal kingdom
- ▶ 60/40 Rule

Dolphin Training

- ▶ Group Dynamics
- ▶ Let everyone taste success
 - Teachers teach differently to students they perceive as slow

Fighting Fair to Avoid Arguing

Wisdom of Serenity

- Accept the things we cannot change
 - Push the pause button
 - What is my purpose here
- Raise awareness of what hasn't worked in the past

How to Handle Anger

- ▶ ?

Become a Problem Solver

- ▶ Deal with the underlying emotion

Use Steve Covey's Rule

- ▶ Seek first to understand
 - Detach and observe
 - Remove the blame factor
 - Leave ego at the door

Choose an energy that is congruent with your purpose

- Underlying Meaning Behind Fear
- They are afraid
 - We will not listen
 - We will not understand the seriousness of their problem. We won't value what they say
 - We win they lose
 - We will blame and criticize them

Change Your Perspective

- They are frightened not frightening
- Threatened not threatening

- Replace their fear with ...
 - Awareness
 - Compassion
 - Love

The Angry Employee or Customer

- ▶ Recognize that their anger is usually a symptom of:
 - Hurt
 - Fear
 - Frustration

Connecting to Them

- ▶ Feel what they say and then respond
- ▶ If they say they are frightened
 - Make eye contact
 - Touch their hand or shoulder if appropriate
 - I know this must be scary

How to Stop your Amygdala from Firing

- Empathy Phrase
- Why are they being so difficult?

Empathy and Mirror Neurons

- ▶ What is empathy?
- ▶ Mirror neurons in a social situation
- ▶ Monkey see monkey do
- ▶ Have empathy for customers and employees

Changing Behavior

- Antecedent
- Behavior
- Consequences

Replace but with and

End Complaints Instantly

- ▶ Agree
- ▶ Apologize
- ▶ Act

Thank people for complaining

- ▶ Agree
- ▶ Apologize
- ▶ Act
- ▶ Appreciate

Mind Reading

Two Types of Mentality

- Fixed
- Growth

Relationships

- ▶ Increased healing power
- ▶ Decrease in interleukin 6
- ▶ Improved wound healing

Humor

- ▶ Improved immune system
- ▶ Memory enhancement
- ▶ Turn frustration into humorous dramatization
- ▶ The power behind a smile

Review

- ▶ Fraud and the Brain
- ▶ Decreasing Fraud
- ▶ Decreasing Stress and Increasing Focus
- ▶ Decrease Stress
- ▶ Increase Focus
- ▶ Creative Thinking
- ▶ Incorporating Humor in Your Life

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