Neuroleadership:
Opening Session
Renee Ford, Presenter
Activity

Name Bingo.
Please collect names on your bingo sheet.

Renee Ford, rjf227@psu.edu
Workshop Objectives:

At the end of this workshop, participants will be able to:

- Build an understanding of neuroleadership and its benefits.
- Review neuroscientific approaches to leadership.
- Apply neuroleadership strategies.
- Investigate developments and discoveries in neuroscience and neuroleadership.
- Name the benefits of neuroleadership.

Renee Ford, rjf227@psu.edu
Ground Rules

- We will begin and end on time.
- Please respect one another.
- Please participate as much as possible in all activities and discussions.
- Please respect confidentiality.
- Please have fun and be ready to learn.

Renee Ford, rjf227@psu.edu
The Benefits of Neuroleadership

New neuroscience discoveries can help us become better leaders, improving our:

- Decision-making and Problem-Solving
- Emotional Regulation
- Ability to collaborate with and influence others
- Ability to facilitate change

Who can Benefit from Neuroleadership?

- Business schools wanting to bring more science into how they develop leaders.
- Organizational consultants looking for more effective tools to drive positive change.
- Leaders looking for insights into improving performance.
- Educators looking to understand how to improve learning.

YOU Can Benefit from Neuroleadership!!

Let’s Get Ready to Learn About the Brain!

Rev. Renee J. Ford
rjf227@psu.edu
814-808-5730
Neuroleadership:
Module 1:
Brain Anatomy: How Are We Wired?

Renee Ford, Presenter
Objectives:

At the end of this module, participants will be able to:

- Identify and define major brain regions.
- Discuss leadership roles and their associated brain regions.
- Review basic brain anatomy and function.

Renee Ford, rjf227@psu.edu
Activity

Please form groups of 2-3 and write down as many sayings that you can think of that include the words brain or mind.

Renee Ford, rjf227@psu.edu
Activity:
Brain Anatomy
Please form Five (5) groups

Renee Ford, rjf227@psu.edu
The Brain House

Ways to Remember Brain Parts

THINK OF A HOUSE.

Prefrontal Cortex (PFC) – Presidential Control Center. This area of the brain controls thinking and logic. The prefrontal cortex is in the Frontal Lobe.

Cingulate Gyrus – Circular Gerbil Wheel. This area of the brain can cause inflexible thinking when overactive. The cingulate gyrus is in the Frontal Lobe.

Adapted from Henslin, S. (2008). *This is your brain on joy*. Nashville: Thomas Nelson.
Ways to Remember Brain Parts

Temporal Lobes – *Temper Lofts*. Cause anger and rage when overactive.

Basal Ganglia – *Basement of Giant Fears*. Helps you avoid dangers, but causes anxiety when overactive. The basal ganglia are in the temporal lobes.

Deep Limbic System – *Depressed Low Mood Space*. Imbalanced limbic systems are responsible for depression. The limbic system is within the temporal lobes.

Adapted from Henslin, S. (2008). *This is your brain on joy*. Nashville: Thomas Nelson.

Renee Ford, rjf227@psu.edu
Brain Fun Facts

- The adult human brain weighs about 3 pounds (1300-1400 g).
- The adult human brain is about 2% of the total body weight.
- The human brain has about 100,000,000,000 (100 billion) neurons.
- The Guinness Book of World Records [1990] has the record for time without sleep belonging to Robert McDonald who spent 453 hours, 40 min in a rocking chair.

SEE YOUR PARTICIPANT PACK FOR MORE FUN FACTS!

Renee Ford, rjf227@psu.edu
Questions/Discussion

Renee Ford, rjf227@psu.edu
OBJECTIVES:

At the end of this module, participants will be able to:

- Identify and define major brain regions.
- Discuss leadership roles and their associated brain regions.
- Review basic brain anatomy and function.
Thank You!

Rev. Renee J. Ford
rjf227@psu.edu
814-808-5730
Neuroleadership:
Module 2: Highlights of Recent Discoveries in Neuroscience for 21st Century Leaders
Renee Ford, Presenter
Objectives:

At the end of this module, participants will be able to:

**B**uild an understanding of neuroleadership and its benefits.

**I**nvestigate developments and discoveries in neuroscience and neuroleadership.

**N**ame the benefits of neuroleadership.
Activity

Please complete the agree/disagree sheet.

Renee Ford, rjf227@psu.edu
Not all Brains Are Created Equally....

And they are constantly changing. Our brains’ ability to change is called neuroplasticity.

Renee Ford, rjf227@psu.edu
Ways we can see what’s going on in the brain

- **Positron Emission Tomography (PET) Scans**
  - Measure the burning of glucose in the brain. Takes recordings which are used to map high brain activity areas.

- **Functional Magnetic Resonance Imaging (fMRI)**
  - Tracks the flow of hemoglobin that carries oxygen through the brain. Active regions of the brain light up.

- **Quantitative Encephalography (qEEG)**
  - Maps very precise brainwave patterns.

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fMRI Imaging

SPECT IMAGING:

What is SPECT imaging (Single Photon Emission Computed Tomography)?

Brain SPECT imaging is a nuclear medicine procedure that evaluates cerebral blood flow. SPECT is easy to understand. It evaluates areas of the brain that work well, areas of the brain that work too hard, and areas of the brain that do not work hard enough.
SURFACE IMAGE vs. ACTIVE IMAGE

A normal 3D surface scan shows good, full, symmetrical activity across the brain’s cortical surface.

A 3D active brain image comparing average brain activity to the hottest 15% of activity. These images are helpful for picking up areas of over activity, as seen in active seizures, obsessive compulsive disorder, anxiety problems, certain forms of depression, etc.

Physicians are usually alerted that something is wrong in one of three ways: (a) they see too much activity in a certain area; (b) they see too little activity in a certain area; or (c) they see asymmetrical areas of activity, which ought to be symmetrical.
ADD/ADHD

The next slide shows a scan of an individual with over focused ADD, with symptoms of trouble shifting attention, cognitive inflexibility, difficulty with transitions, excessive worrying, and oppositional and argumentative behavior. There are often also symptoms of inattention and hyperactivity-impulsivity.

The next slide shows increased activity in the anterior cingulate gyrus and decreased prefrontal cortex activity.
SPECT IMAGES – ADD/ADHD

Typical Brain Activity

ADD/ADHD Brain

Taken from: http://www.amenclinics.com/brain-science/

Renee Ford, rjf227@psu.edu
Did You Know?

It is thought that Andrew Carnegie had ADHD.

Source: http://add.about.com/od/famouspeoplewithadhd/a/famouspeople.htm

Renee Ford, rjf227@psu.edu
Did You Know?

Winston Churchill suffered from depression.

Source: http://depression.about.com/od/famous/Famous_People_With_Depression.htm

Renee Ford, rjf227@psu.edu
SPECT IMAGES – Asperger’s Syndrome

Normal Brain

Asperger’s

Taken from: http://www.amenclinics.com/brain-science/

Renee Ford, rjf227@psu.edu
What is Aspergers Syndrome?

In very broad terms, individuals with Asperger's have normal or above average intelligence, with poorly developed social skills, often with emotional/social development maturing later than his or her peers, and speech and language peculiarities.

According to the DSM – IV, the Diagnostic Criteria For 299.80 Asperger's Disorder include:

1. Qualitative impairment in social interaction.
2. Restricted repetitive and stereotyped patterns of behavior, interests, and activities.

Source: http://www.aspergerresources.com/famous_people_with_aspergers.html
Some Famous Leaders with Aspergers Syndrome

- Bill Gates

- Temple Grandin - She is a designer of humane food animal handling systems, and has been one of the pioneers in Autism and Asperger Awareness.

- Satoshi Tajiri, the creator of Pokémon - His obsession was insects. In fact, his peers used to call him "Dr. Bug."

Source: http://www.aspergerresources.com/famous_people_with_aspergers.html
Renee Ford, rjf227@psu.edu
Alcoholism:

Heavy alcohol abuse shows marked decreased activity throughout the brain.

Renee Ford, rjford@psu.edu
SPECT IMAGES –
Alcoholism

Normal Brain

38 year-old after 17 years
Of heavy weekend drinking

Taken from: http://www.amenclinics.com/brain-science/

Renee Ford, rjf227@psu.edu
SPECT IMAGES – Caffeine & Nicotine

Normal Brain

45 y/o — 27 year history of heavy use
Smoking 3 packs of cigarettes and drinking 3 pots of coffee daily

Taken from: http://www.amenclinics.com/brain-science/

Renee Ford, rjf227@psu.edu
What our brains need to be effective leaders

- **Enough sleep**
  - The brain needs REM sleep for memory retention.

- **Learning in bite-sized increments**
  - Our prefrontal cortex can generally only handle 20 minutes of new information at one time.

- **A healthy work environment**
  - Prolonged stress increases cortisol levels and shrinks the hippocampus.

- **Social fairness & respect**
  - Praise produces a chemical boost of serotonin, but criticism increases cortisol levels.

Renee Ford, rjf227@psu.edu
What our brains need to be effective leaders (continued)

- Active learning techniques
- Clear expectations
  - Clear expectations increase dopamine levels and help people think more clearly.
- Practice of needed skills.
  - Practice really does make perfect!
- Exercise
  - Increases productivity and brain health.

Question: What does neuroscience have to do with leadership?
Answer: EVERYTHING!!
Renee Ford, rjf227@psu.edu
The Benefits of Neuroleadership

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- Emotional Regulation
- Ability to collaborate with and influence others
- Ability to facilitate change

Activity

Think-Pair-Share.
Concepts & Content.
LEADERS ARE ENCOURAGED TO GROW THEIR INTELLIGENCE AND FOSTER GROWTH IN THE MINDS OF THOSE THEY INFLUENCE.

INTELLIGENCE IS LIKE A MUSCLE

NEURO-DIVERSITY SHOULD BE CELEBRATED.

Intelligence is not like height, it is like strength.

We can grow intelligence.

Renee Ford, rjf227@psu.edu
Let’s Take a Break, then apply what we’ve learned!

Rev. Renee J. Ford
rjf227@psu.edu
814-808-5730
Neuroleadership: Module 3: Neuroleadership in Practice

Renee Ford, Presenter
Objectives:

At the end of this module, participants will be able to:

- **R**eview neuroscientific approaches to leadership.
- **A**pply neuroleadership strategies.
The Benefits of Neuroleadership

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Renee Ford, rjf227@psu.edu
Neuroleadership Can . . .

Neuroleadership concepts can help individuals fulfill their potential through better understanding how the human brain functions at individual, team, and systemic levels.
Neuroleadership & Change Initiatives

Sheldon (Big Bang Theory):

No, it's not going to be fine. Change is never fine. They say it is, but it's not.

Activity

Please break into groups and discuss what you have been taught is necessary to ensure a successful change initiative. Please record your answers.
Neuro-leadership & Change

Our brains are “wired” to perceive all change as a threat. It activates a flight-fight response.

Neuro-research shows that employees must “own” change initiatives for success.

Leaders need to learn to recognize, encourage and deepen team member’s insights. At the moment of insight, new brain connections are being created.

Encourage others to focus on positive outcomes.

Peter Drucker said:

We now accept the fact that learning is a lifelong process of keeping abreast of change and the most pressing task is to teach people how to learn.

Activity

Case Study.
Please form two groups.
Just a few more items and we will be done!

Rev. Renee J. Ford
rjf227@psu.edu
814-808-5730
Neuroleadership: Review
Renee Ford, Presenter
The Benefits of Neuroleadership

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- Emotional Regulation
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Activity

Quaker Meeting Activity.
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- Name the benefits of neuroleadership.
Activity

Please complete evaluation forms and leave them in the bin. Once forms are completed, you are free to go home.
Thank You!

Rev. Renee J. Ford
rjf227@psu.edu
814-808-5730