

Rewiring the Brain:

**What L&D Pros
Need To Know
About Neuroscience**



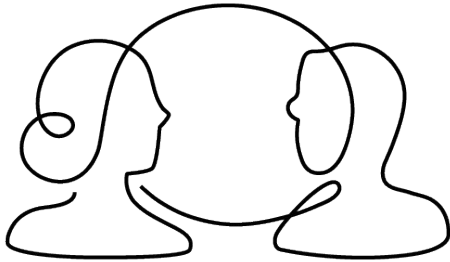
Presenter:

Rich Fernandez, Ph.D.
CEO, SIY Global





our discussion



1 **What** Is Neuroscience?

2 **Why** Neuroscience Matters for L&D

3 **“Core Skills”** Powered By Neuroscience

4 **Practical Applications** - Tips to Get Started

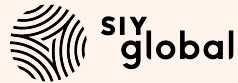
Learning & Development



my
journey



Brain & Behavior



Science Advisory Board:

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Steven Laureys, Ph.D.
Ekaterina Denkova, Ph.D.



Columbia University

Ph.D., Counseling Psychology
Columbia University
M.A., Organizational Psychology



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**I didn't realize working
with other human
beings was part of the
job description.**

Anonymous Google Engineer | early SIY pilot, Circa 2009





the SIY Global journey

Google



2007

Created within Google by a group of neuroscience, mindfulness, and emotional intelligence, experts.



Search Inside Yourself
Leadership Institute



2012

Launched an independent non-profit educational institute.



SIY
global



2022

B-Corporation focused on transforming organizational leaders and cultures with neuroscience-based skills.

1

What is neuroscience?



What is neuroscience?

Neuroscience is the scientific study of the brain and other parts of the nervous system.

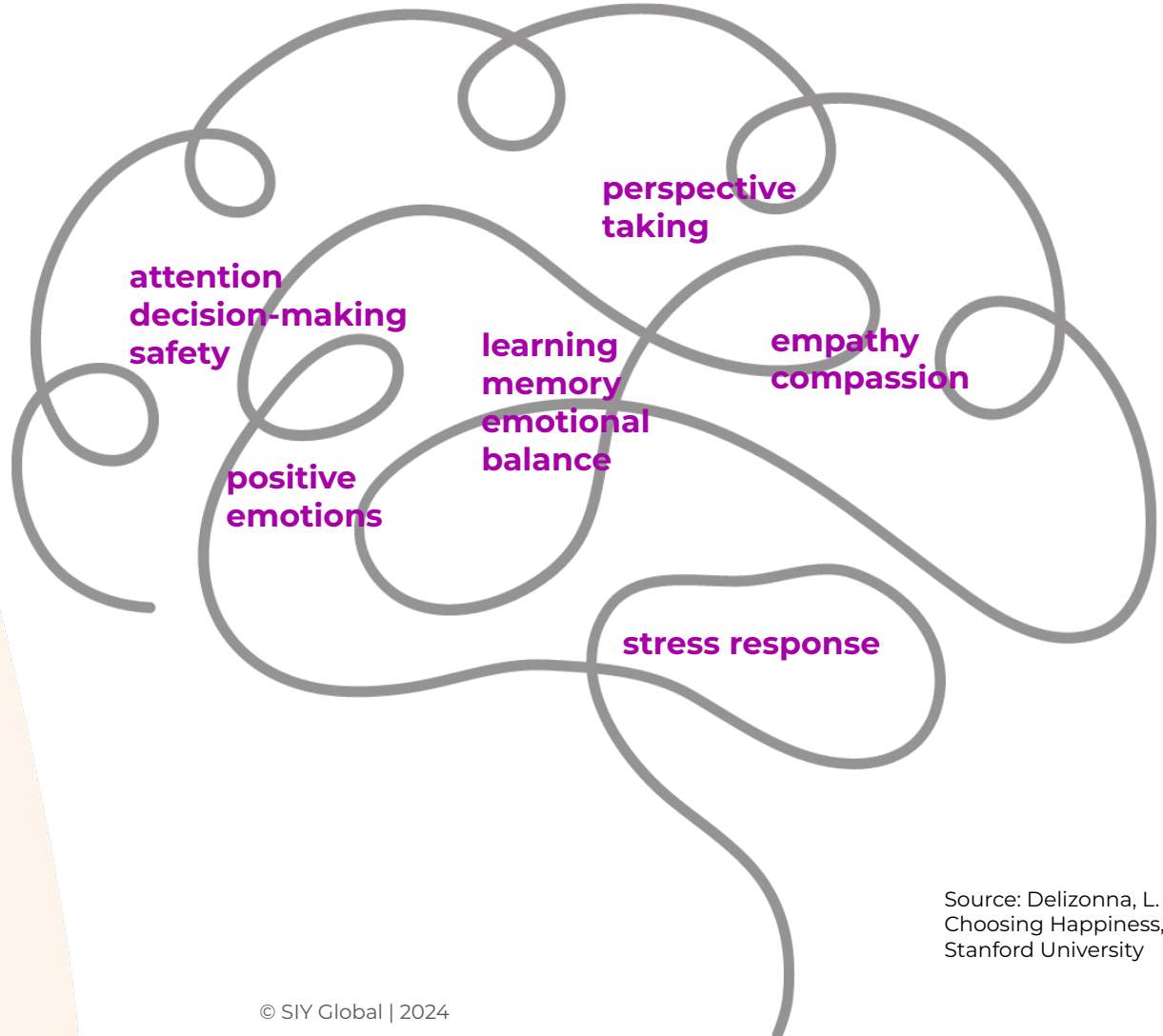


What is a (human) neural network?

A neural network **is a cluster of nerve cells in the brain that drives specific behavioral and anatomical functions.**



key neural networks



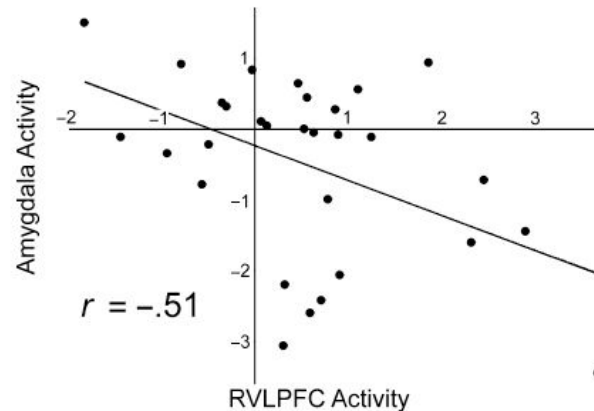
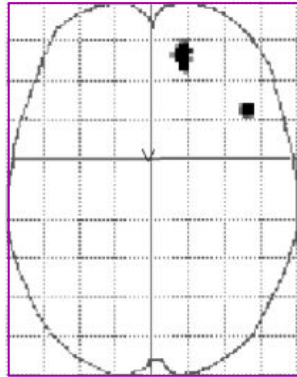
Neuroplasticity is the **ability of the brain to change its structure and function based on our attention, our thoughts and our behaviors.**



**What is
neuroplasticity?**

Example: “Use your words!”

Prefrontal cortex activation down-regulates amygdala through use of labeling



Emotion Naming Area (RVL PFC)



Emotional Reactivity (Amygdala)

2

Why Neuroscience Matters for L&D

Neuroscience addresses core human-centric challenges

95% of our cognitive processes are not conscious

Effective, intentional leadership can be cultivated using neuroscience

80% of people resist change; only 20% are change-ready

Neuroscience approaches enable adaptability & change-readiness

Negativity bias is hardwired in our brains; we fail to innovate and try new things as a result

Neural regulation skills lead to mindset shifts that promote learning

Cognitive biases and attribution errors cause us to make poor decisions

Cognitive reappraisal skills increase mental clarity & decision quality

Only 26% of leaders create psychological safety in teams

Psychological safety is trainable using neuroscience-based techniques

Only 22% of leaders demonstrate emotional intelligence, but 71% of employees value EI

Core EI skills are trainable using neuroscience-based learning solutions

World Economic Forum: Future of Work Skills

6 of 10 are human-centered

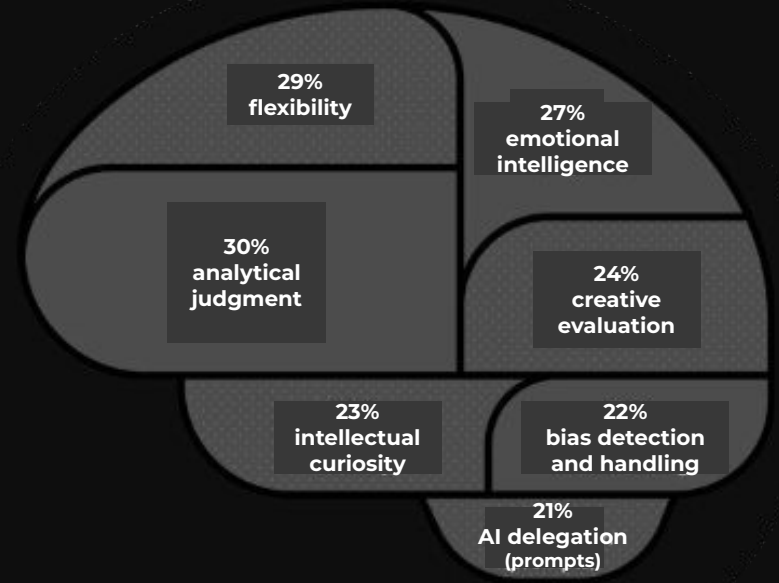


Source: World Economic Forum, Future of Jobs report, May 2023



Microsoft Trend Analysis: Skills most needed in the future

1. analytical judgment
2. flexibility
3. emotional intelligence



Source: Microsoft Work Trend Index, May 2023
31,000 people in 31 countries



But what about...

AI and the future of work?



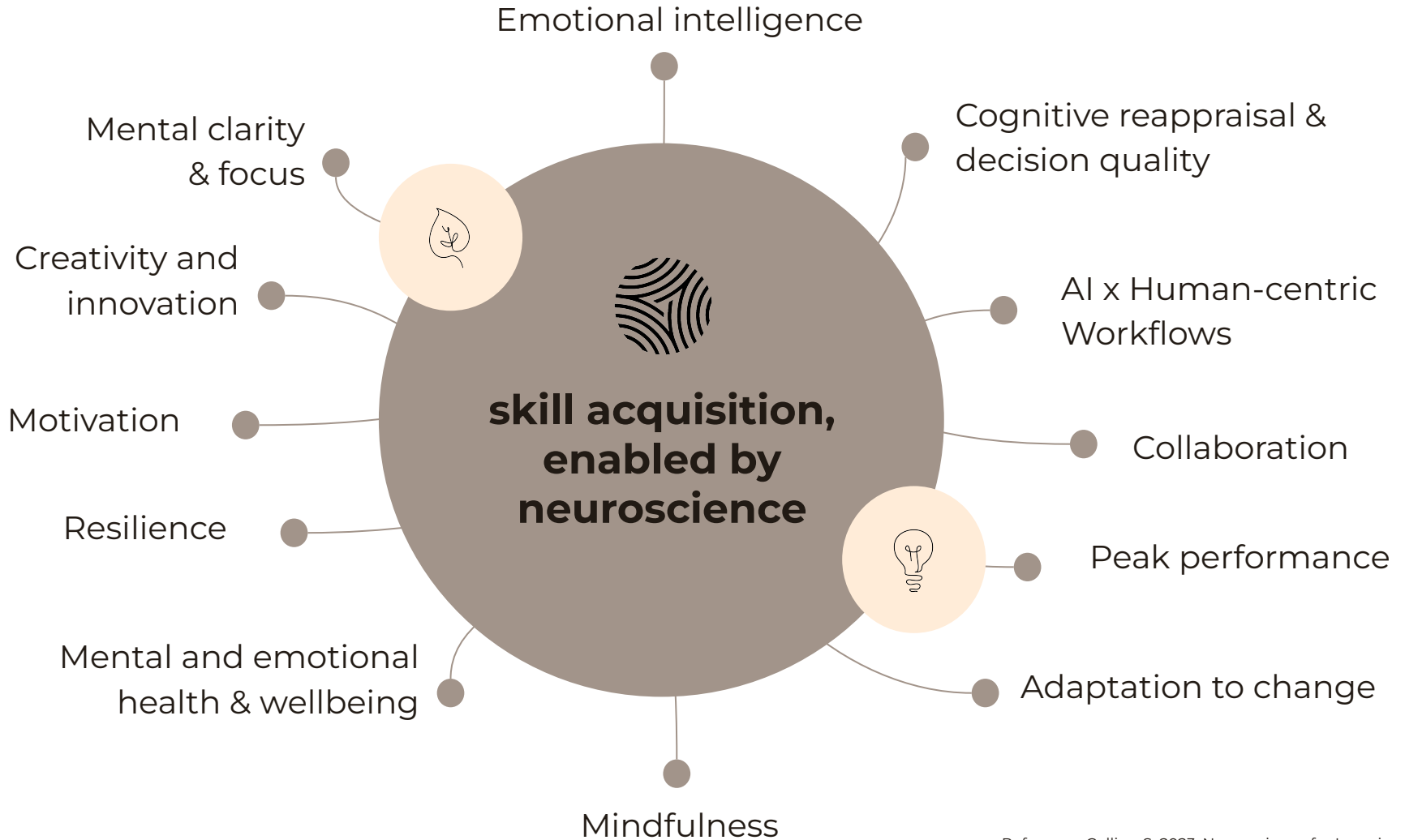
key findings

- **More than 75% of companies to adopt AI, Cloud and Big Data technologies over the next 5 years**
- The impact of most technologies on jobs is expected to be a **net positive over the next five years**
- Employers estimate that **44% of workers' skills will be disrupted** in the next five years.
- **Top 5 Skills** needed will be:
 - Analytical Thinking
 - Creative Thinking
 - AI and Big data Skills
 - Leadership and Social Influence
 - Resilience, Flexibility and Agility



3

Core Skills Powered by Neuroscience





Neuroscience and Mindfulness

What's the connection?

mental default mode
“autopilot”



neuroscience

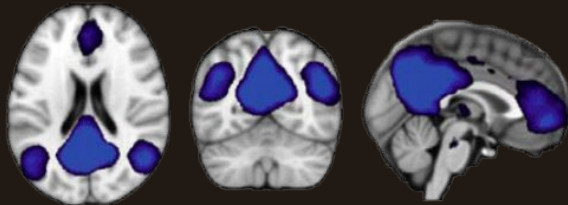
mindfulness
“being aware”

*“Neuroscience operationalizes mindfulness.
Mindfulness operationalizes emotional intelligence.”*

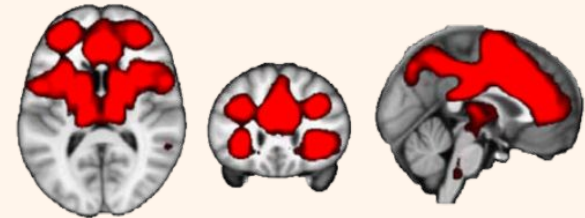
- Rich Fernandez



Differential neural networks



Default Mode Network:
Reactive,
Mind Wandering



Central Executive Network:
Regulation,
Executive Function



Employee Engagement



Business Transformation



Better Decision-Making



Values & Purpose



Business Results



Enhanced Leadership

Empathy, psychological safety, compassion, ethics, values, trust



Sustainable Performance

Focus, productivity, collaboration, innovation, change agility



Well-Being

engagement, motivation, stress management skills, resilience, mental & emotional health



Emotional Intelligence

Self-Awareness, Self-Management, Social Awareness, Relationship Management



Mindfulness



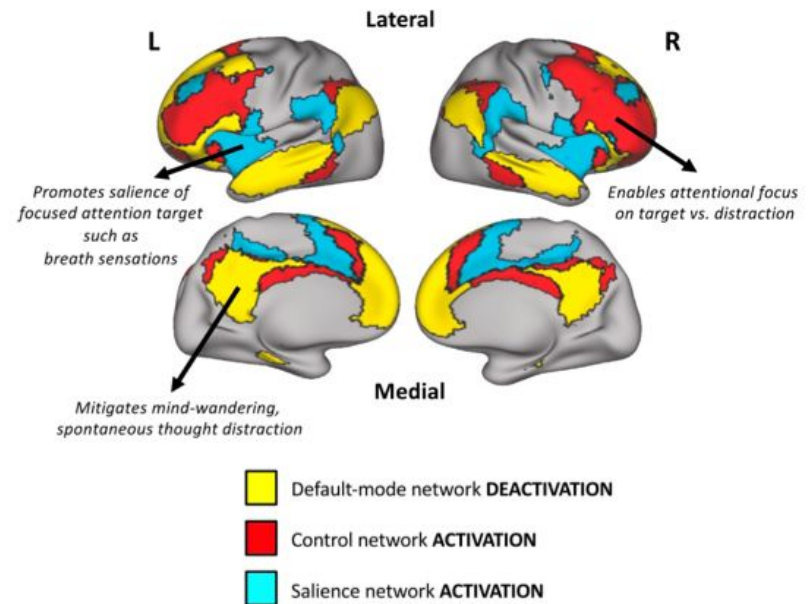
Neuroscience

meditation practice changes in attention & mind-wandering

default mode network (DMN)

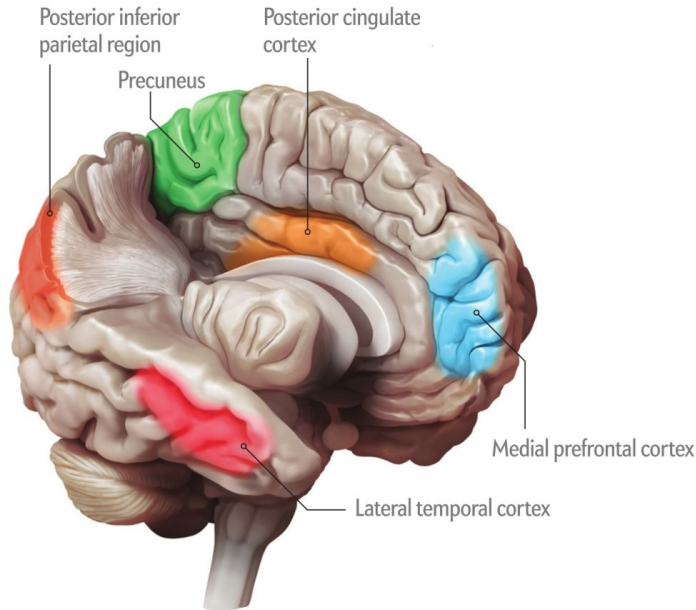
- Associated with **mind-wandering** and self-referential thinking (including anxiety & depression)
- **Less active** during meditation.
- Meditation practice → **greater connectivity** with attention management regions, even when at rest.

Neurocognitive Network Model of Focused Attention Meditation



Ganesan et al., 2022

neuroplasticity: changes in attention and mind-wandering



default mode network (DMN)

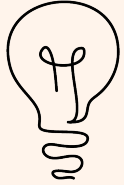
- Related to **mind-wandering** and self-referential thinking.
- **Less active** during meditation.
- Meditation practice → **greater connectivity** with attention management regions, even when at rest.



research review

change in
brain regions

- Attentional control
- Emotion regulation
- Self-awareness



neuroscience research limitations to consider

- **Generalizability:** Risk that not all studies are meaningful for a broad population; need to understand sample set characteristics
- **Research Scope and Delimitations:** Risk of drawing conclusions that are beyond the scope and boundary conditions of the findings
- **Causality:** Risks in showing direct causality due to the number of variables at play
- **Methodological Rigor:** Risk that research methods used are limited and/or not sufficiently rigorous (randomized controlled field trials? Multivariate regressions? Meta analysis? Survey intelligence?)



**Let's
Try**



micropractice



three breaths

1. Attention to breath
2. Relax Body
3. Ask: What's important now?



your brain using neuroscience

reactive



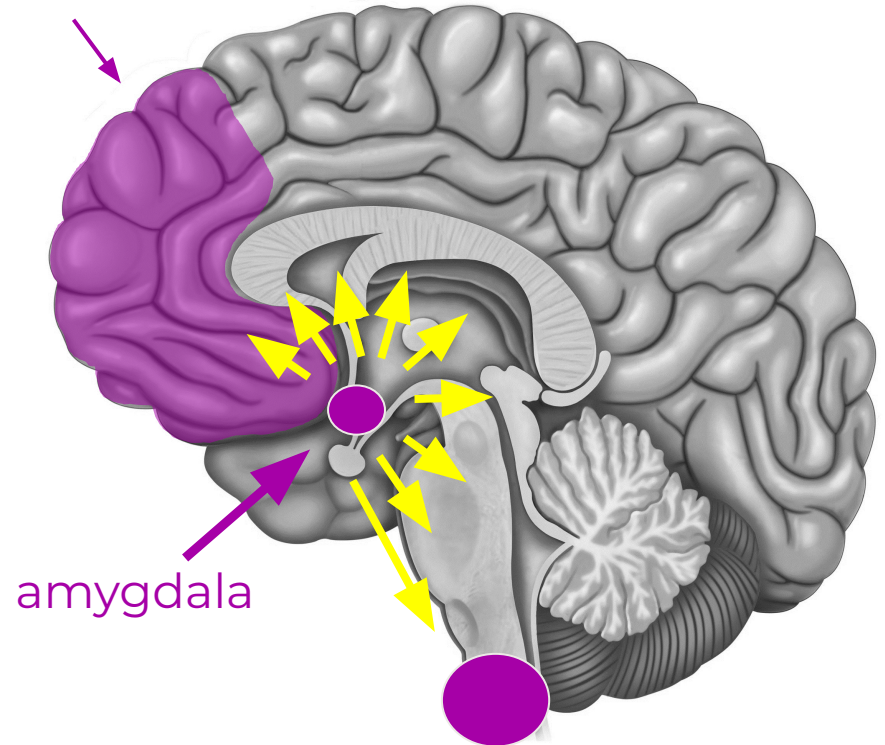
responsive

reactive brain

Stress and overwhelm
override cognitive,
interpersonal, and
innovative functioning.

Typically: “Fight, Flight
or Freeze”

prefrontal
cortex



amygdala

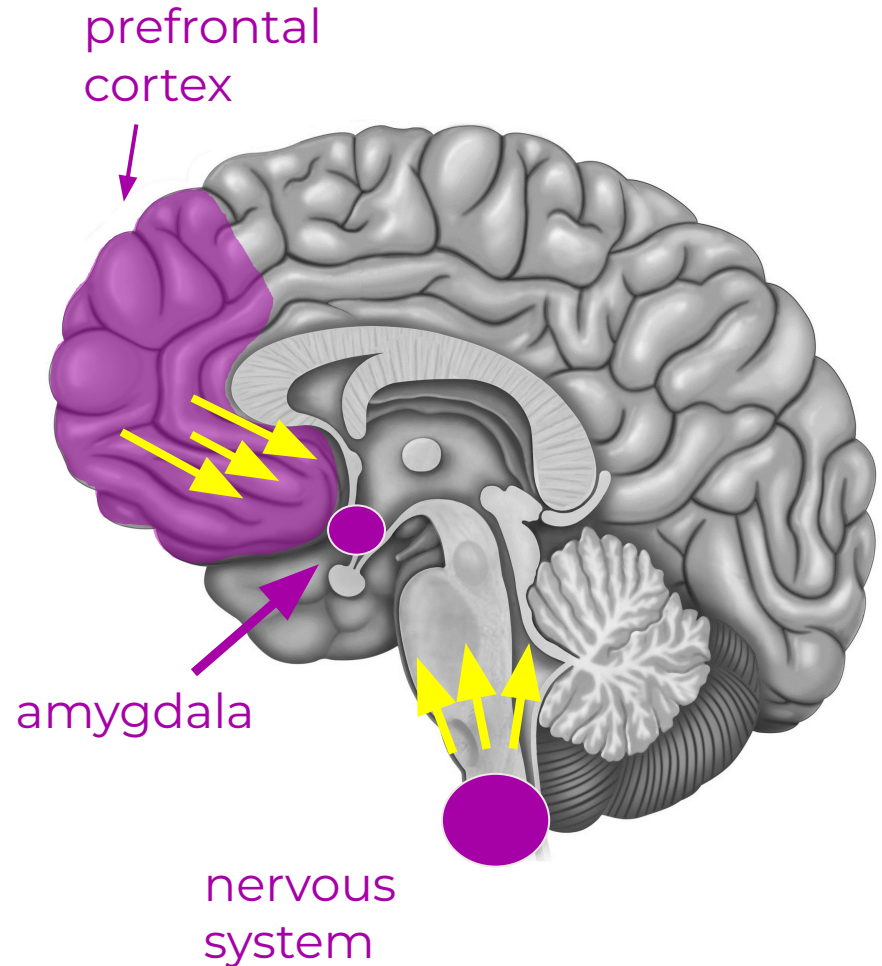
nervous system,
hypothalamic-pituitary-
adrenal (HPA) axis

responsive brain

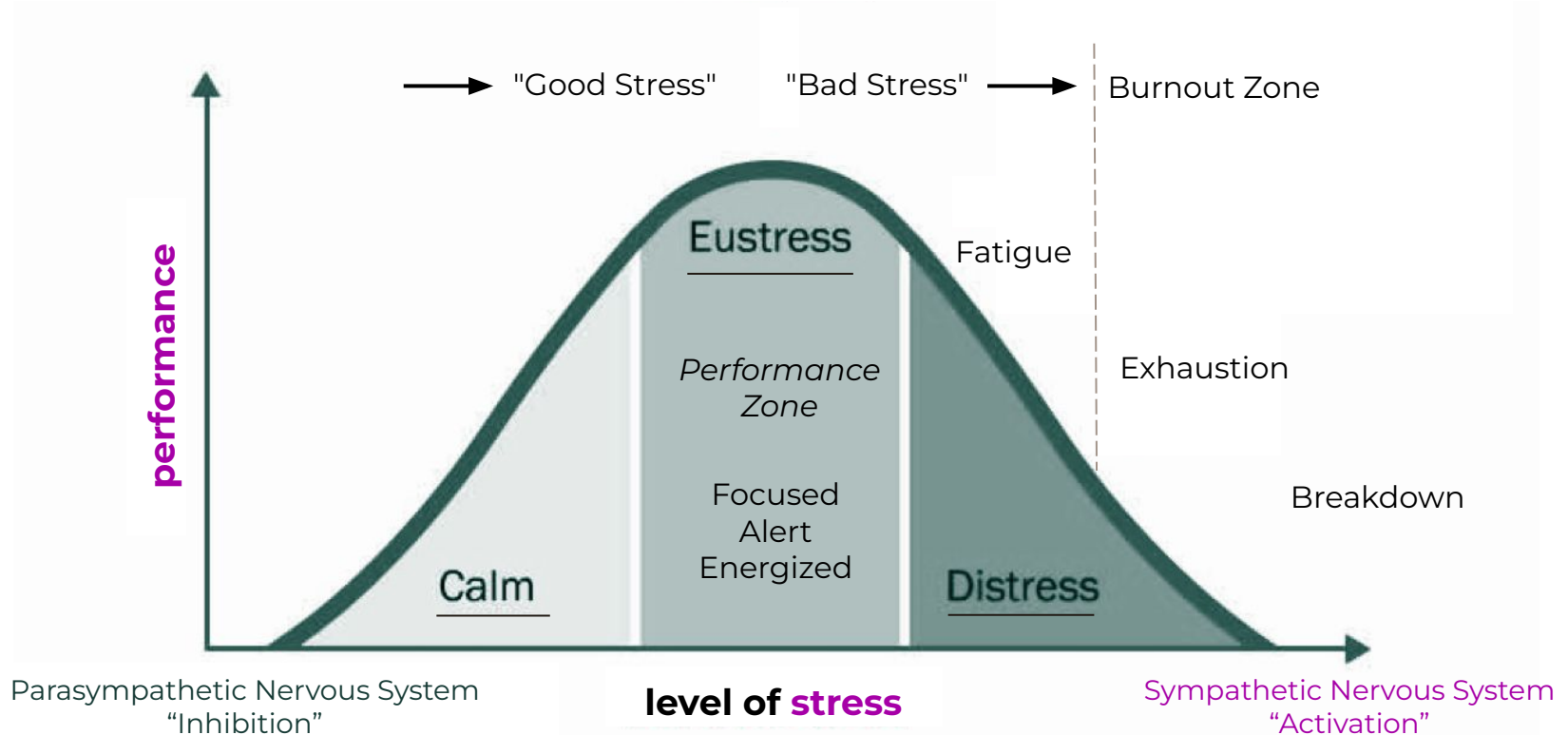
“Top down” regulation

High executive function

Mental clarity, focus and
innovation



different types of stress: eustress & distress



Cognitive Response:

negativity bias
cognitive bias
attribution errors



negativity bias

- Catastrophic thinking
- Constant, perceived threat
- Limited ability to focus
- Rumination
- Underestimate resources

attribution errors

- Overconfidence
- Default pessimism
- Cultural misunderstanding
- Selective memory
- False consensus



the impact of stress on your brain

stress



negativity bias



cognitive bias & attribution errors

**Stress often
overrides
training.**

**Neuroscience and
mindfulness can
change that.**





micropractice



minute to arrive

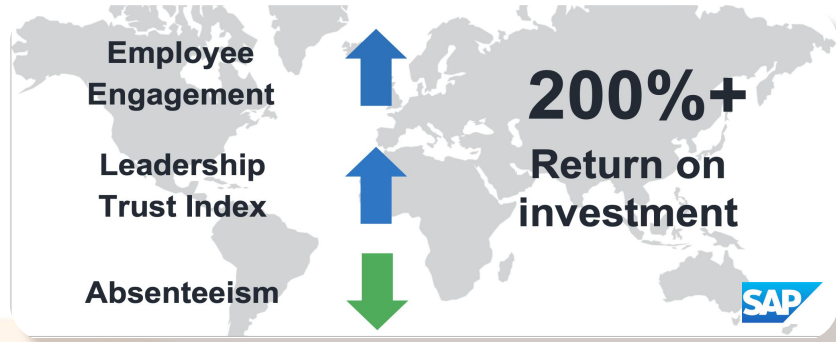
A quiet moment to fully arrive
before starting work or a meeting:

1. Present moment attention
2. Notice breath
3. Notice body
4. Notice thoughts / emotions



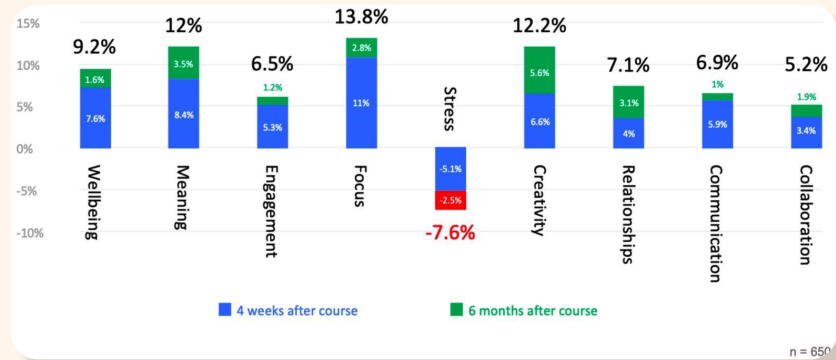
impact

Neuroscience-based SIY programming at SAP



SAP Business Health Culture Index (BHCI):

- SAP BHCI improved to 80% in 2020
- Per SAP, every 1% change BHCI delivers €90-€100 million in operating profit

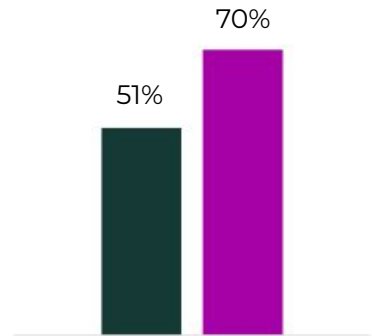


Scaling Search Inside Yourself via Train-the-Trainer at SAP:

- 70 In-House Certified Teachers, 30 countries, 50 locations
- 18,000 employees trained, 5,000+ on wait list

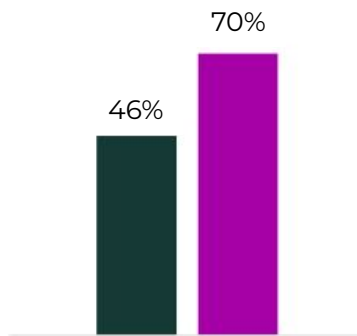
changes after SIY

PRE-PROGRAM COMPARED TO 4 WEEKS POST-PROGRAM



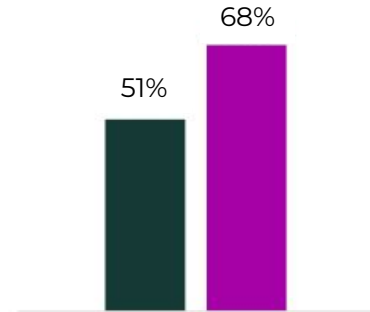
Conflict Management

“I am able to pause before reacting.”



Mental Clarity & Focus

“I am able to notice when my attention has been pulled away and return it to the present moment.”



Empathy

“When in conflict with someone, I take time to fully understand what is driving their perspective.”



PRE-PROGRAM



POST-PROGRAM



“

During those days when we hit a snag or I felt my energy getting low, I would use the (SIY) micropractices, “three breaths,” “a minute to arrive,” and especially “**what would be of service?**”

Using those throughout the days allowed me to be fully present in the moment and not concerned about other crises and things that needed attention. I could focus on what needed attention right in front of us.

Hanna Steplewska,
Former Vice President, Stratolaunch,
referencing SIY Micropractices



4

Practical Tips to Get Started



Practical Tips To Get Started Neuroscience- based learning design

Neuroscience-based Design Principle	How
Eustress Conditions	Create dedicated time and space where learners can stimulate neural growth in conditions that are both challenging and relaxed.
Empirical Rigor	Anchor learning practices against validated, generalizable research that focuses on functional and/or structural brain changes.
Experiential Learning	Create active learning through immersive practice, discussions, application to real-world scenarios
Multi-Modal Practice	Mix conceptual, interactive and experiential learning
Spaced Repetition	Offer practice sessions that are distributed over time to address brain's tendency to forget; create opportunities for re-learning to re-inforce neural connections.
Interactive Reinforcement	Create opportunities for cohort based, peer learning to effectively encode and reinforce learning; community-based learning sustains learning over time.

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Neuroscience provides us with an essential understanding of how our brains are structured, develop and change over time and circumstance.

Integrating neuroscience into our learning design allows us to optimize skill acquisition, integration and impact for any learner, anywhere, anytime.

Rich Fernandez, Ph.D. | CEO, SIY Global





comments & questions