

THE NEUROSCIENCE OF OPTIMIZING INNOVATION AND COLLABORATIVE ENGAGEMENTS:

## When Being In The Office Is Critical To The Business

#### A Two-Hour Interactive Briefing

Presented by: Dr. Rick Maybury KJI President and Founder





#### VISION

The Knowles Johnson Institute of Graduate Studies produces practitioners who will make real-world impacts as expert **architects**, **navigators**, **and next-generation leaders** of global organizations that need to sustain success in an unpredictable world.

#### KJI'S CONTRIBUTION TO NEUROSCIENCE RESEARCH

- KJI specializes in participating in ongoing research and practical application
- KJI advances the sciences through fieldbased practicum research and collaborations with global researchers



KJI is the only university in the country with its curriculum and learning modalities



#### Masters and Doctoral Degrees in Human and Organizational Development



"The two most important days in your life are the day you are born and the day you find out why."

Mark Twain

#### **KJI STUDENTS**

- Mid and third-career professionals
- All have aspirations to make a difference in the lives of others and the organizations they serve
- Student learning and research are experienced in the **context of their aspirations.**

#### KJI LEARNING MODEL

- Mentored education in the context of the student's aspirations
- One-on-one student-faculty ratio, small student research teams
- In-person, weekend intensives

KJI is a 501(c)(3) non-profit university



*Try not to become a person of success, but rather try to become a person of value.* 

#### Albert Einstein





## Context Possibilities for the Presentation

There are many contextual possibilities incorporating principles of neuroscience, such as:

- Innovation
- Organizational design to optimize individual and collective human performance
- Collaborative work
- Influence
- Management of change
- Relationship building
- Employee engagement and development
- ...many others

What contexts are of interest to you?





## Module 1 Briefing Overview





## **Organizing Genius**

The leader finds greatness in the group. And he or she helps members find it in themselves....

Warren Bennis, 1997







## A Few Questions Facing Organization Leaders Today

Is it necessary for staff to return to the office?

What is the value to both the business and our staffs of bringing staff back into the office?

If we bring staff back, how do we redesign work environments based on lessons learned?

What is the science telling us?





## The Three Keys To Effectiveness in Today's Business Environment

1. Utilize the Neuroscience of Collaboration and Innovation to Optimize Individual and Collaborative Performance



The Law of Physics of Human Behavior



2. Align the Design of the Organization and Operations to the Critical Demands of the Business

3. Deliver Education, Training, and Development for Leaders, Teams, and Individual Professionals to Optimize Performance in the New Models







Employee remote work benefits include (as reported by employees):

- Improves work-life balance
- Less time wasted in commuting
- Adapts better to family demands
- Able to live in less expensive locales and have enjoyed a new lifestyle
- Some types of work are more productive

#### Employer benefits of returning to work include (quantitative and anecdotal data):

- Increases productivity in knowledge-based, intellectual property-based activities
- Faster time-to-market for new and updated products and services
- Improves robustness in innovation, design, and development of products and services
- Increases employee retention
- Faster and more effective employee development from teamwork and mentoring



\* How do you adjudicate these conflicting interests?





## **Modest Goals for the Briefing**

#### **Goals for the Briefing:**

- Provide you with insights into well-established **organizational psychology principles** and the **emerging neuroscience** as they relate to business demands and challenges with returning to the office
- Identify specific impacts on knowledge-based activities such as innovation and multidisciplinary critical thinking of virtual versus co-present work environments
- Engage your thinking about how to utilize the science to optimize your company's organizational effectiveness

#### **To Note Regarding the Briefing:**

The research and data are **generalized** and **extrapolated** to provide a clear and actionable message within the constraints of time

The neuroscience research is a young science and informing us near daily







# The future depends on what we do in the present.

#### Mahatma Gandhi





## Your thoughts...

What are your thoughts or beliefs about working remote?

Are you looking forward to returning to the office, or would you rather stay remote or work in some form of hybrid model? Why?





Does your business require you or your staff do any of the following to be successful: (Keep count)

- ✓ Relationship building and effective relationships are essential for you and your organization to be successful in delivering your products and services
- Effective interpersonal, mutually understood communications are critical for success
- ✓ Interpersonal influence is vital to individual, team, and company success
- ✓ Trust is a critical factor in colleague-to-colleague and staff-to-client relationships
- ✓ Innovation, out-of-the-box thinking, and multidisciplinary critical analysis are required to maintain your competitive edge
- Your organization's current and future viability relies on developing and retaining early-career staff







#### **Crow's Law:**

Don't believe what you want to believe until you know what you need to know.





## **The Timely Question:**

What is the neuroscience suggesting to us about human engagement modalities and their impact on not only **innovation** and **critical thinking** but also on the key attributes of **interpersonal success** represented in the prior checklist?





## Module 2

## The Neuroscience and Choice of Engagement Modalities





## **Deciding The Engagement Model**

### **The Leadership Challenge**

How does a leader select an operational model and design an engagement strategy that optimizes mission-critical activities?

## **The Guiding Principle**

To be effective, it is not possible for people to do anything from anywhere at any time with optimal success.

Leadership is about identifying and orchestrating the right venue for the proper purpose.

What Does The Neuroscience Tell Us About How We Are Designed For Complex Thinking?







## **Cognitive Functions: A Little Bit of Brain Anatomy**



Neural networks converge in the prefrontal cortex to regulate cognitive and executive functions, such as judgment, organization, prioritization, risk assessment, critical analysis, concept development, innovation, and creative problem-solving.





## To fully engage all lobes for critical thinking and innovation





## **Cognitive Functions: Neural Network Integration**



1. The process of combining cognitive functions in a way that generates a new complex pattern or structure, leading to new and expanded capabilities with thinking and behaving.

2. Integration is the specific form of <u>neural remapping</u> targeted at developing creative, <u>multi-</u> <u>disciplined</u> analytical and innovation capabilities.



3. There is an interdependence between <u>cognition and emotion</u> with the integration process related to the critical issues identified on a previous slide.



Creativity is thinking up new things. Innovation is doing new things.

Theodore Levitt





## The Key to Engaging One's Full Multilobe Cognition

Specific and purposely designed modalities, or lack thereof, will determine the level of full neural/cognitive/affective engagement and integration, which determines the efficacy of innovation and critical thinking outcomes.





## Cognitive Functions: Engagement and Lobal Activation\*

Conference Call Listening



Zoom Call Listening



Zoom Meeting Fully Engaged



In-Person Meeting



Creativity, innovation, and multidisciplined thinking include the demonstration of <u>divergent thinking</u>, which involves <u>co-activation</u> and <u>integrated</u> communication among brain regions that are not ordinarily strongly connected during non-creative activities....

> Creative thinking requires effective integration with multilobe processing.



\* **Note:** The brain scans are an aggregate extrapolation and assimilation of a number of studies noted in the reference section. The application research is still in its early stages and evolving daily.



## Whole Brain Functioning Required Creativity, Innovation, and Influence





\*Note: Creativity and innovation require full cognitive engagement.



## Analogy of Creativity: Musical Training and Neuroplasticity

#### HOW MUSICAL TRAINING SHAPES THE BRAIN

#### FRONTAL LOBE

INCREASED GREY MATTER VOLUME superior, medial, inferior frontal gyrus – executive functions

INCREASED fMRI ACTIVATION primary & supplementary motor areas - motor preparation and execution Broca's area - speech production

#### TEMPORAL LOBE

INCREASED GREY MATTER VOLUME & INCREASED fMRI ACTIVATION Heschl's gyrus – primary auditory cortex, pitch perception superior temporal gyrus – auditory processing INCREASED MISMATCH NEGATIVITY (EEG)

#### BASAL GANGLIA & LIMBIC SYSTEM

INCREASED GREY MATTER VOLUME hippocampus – memory formation & retrieval INCREASED EEG RESPONSE

temporal-limbic areas – emotions and memory



INCREMENTS IN STRUCTURE AND FUNCTION MUSICIANS COMPARED TO NON-MUSICIANS

#### PARIETAL LOBE

INCREASED GREY MATTER VOLUME primary somatosensory cortex – touch perception

INCREASED fMRI ACTIVATION supramarginal gyrus – syntax processing and attention

#### WHITE MATTER TRACTS

INCREASED WHITE-MATTER INTEGRITY corpus callosum – connects brain hemispheres corticospinal tracts – connect motor areas with spinal cord

short fibres - connect sensory and motor areas striatum - motor planning and reward perception

#### **OCCIPITAL LOBE**

INCREASED GREY MATTER VOLUME lingual gyrus - score reading

#### CEREBELLUM

INCREASED GREY & WHITE MATTER VOLUME movement coordination and motor learning

\*Note: Creativity and innovation require full cognitive engagement.



# The Key Question of How to Build New Neural Networks:



What are the situations and contexts that optimize creativity, innovation, and mutual influence that is the foundation of synergistic collaborative work?

#### **Key Concept**

**Neuroplasticity:** The brain's ability to change, adapt, and create new capabilities resulting from experiences. Experiences can be orchestrated to this end.





## Symphony of Creativity: 1947 Informal Jam Session with a Few of the Greats







Informal Jazz session with Duke Ellington, Dizzy Gillespie, Count Basie, Lester Young, Billie Holiday, Roy Eldridge, Cozy Cole, Gene Krupa, and other greats...



## Interdisciplinary Fields of Science that Influence Multilobe Neural Engagement

The fields contribute to understanding cognitive engagement, on a neural anatomical level, related to the focus of creativity, innovation, and critical thinking in the workplace:

- Neuroscience of learning
- Social psychology
- Personality Psychology
- Neuroanatomy
- Cognitive Psychology
- Neuropsychology
- Physics
- And a host of other disciplines







## How Many Did You Check?

Does your business require you or your staff to do any of the following to be successful:

- Relationship building and effective relationships are important for you and your organization to be successful in delivering your products and services
- Effective interpersonal, mutually understood communications are critical for success
- ✓ Interpersonal influence is vital to individual, team, and company success
- Trust is a critical factor in colleague-to-colleague and staff-to-client relationships
- ✓ Innovation, out-of-the-box thinking, and multidisciplinary critical analysis are required to maintain your competitive edge
- Your organization's current and future viability relies on developing and retaining early-career staff







## Module 3

## The Neuropsychology of Interpersonal Effectiveness





The following factors have been found to be critical in stimulating neural networks related to innovation, collaboration and multidisciplinary critical thinking:

- Humans are **wired for social interaction** for intellectual and affective understanding and development
- The closer the relationships, the greater the collaborative innovation
- The **degree of trust** determines both the relationship and the willingness to take collaborative risks with out-of-the-box thinking and testing
- A sense of **personal safety** is key to one's willingness to take risks and change
- Interpersonal influence is key to innovation and is dependent on all of the above
- Humans process consciously and subconsciously meta cues which are not effectively processed and are often **only accessible when co-present**
- Research suggests that many great ideas and innovations occur from **casual and spontaneous conversations** and











If you don't know where you are going, you will wind up somewhere else.

Yogi Berra





**Theory of Proximity** 

The quality and efficiency of developing interpersonal relationships, collaborating, learning, innovating, critical thinking, synergistic group efforts, and other human engagements, particularly those requiring complex cognitive involvement, are correlated with the physical proximity of the participants.



There appears to be something about the human condition that our brains only fully engage in an integrated manner when we are in close proximity to each other.



## The Venue Leading to Full Integrated Brain Potential

#### Conference Call Listening



### Zoom Call Listening



#### Zoom Meeting Fully Engaged



#### In-Person Meeting



\* Full brain neural integration leads to robust creativity, innovation, and transdisciplinary problemsolving.





Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

Albert Einstein





## Factors That Complicate Collaboration and Relationships...Forms of "*Distance*"\*

- Space
- Time
- Culture
- Education
- Gender
- Age (generational differences)
- Personal experience
- Economic
- So many others....

\* Co-present proximity is the most effective mitigation strategy that enables the success of innovative collaborations and team tools



## **Positive Affect Relationships**

#### Low or Neutral Affect Toward Another

## **Positive Affect Toward Another**









Trust factors:

- a. Trust is experienced on the **emotional side of the brain**
- b. Trust is necessary for team members **willing to take a risk** on behalf of the company and/or manager
- c. 94.5% of the population are cognitively predisposed to see creative thinking, innovative behaviors, and multidisciplinary critical thinking as personally risky ... it is a change
- d. Risk and trust are experienced on the **emotional side** of the brain, **not the logical side** of the brain
- e. Willingness to engage **in risk-perceived behaviors** requires a perception of the relationship







## **Neural Integration and Trust**

#### **Low Trust**

## **High Trust**







To improve is to change; to be perfect is to change often.

Winston Churchill

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Change before you have to.

Jack Welch



## The Challenge of Leading Change: Psychological Research

75% of the human population resists change unless ABSOLUTELY necessary.

 ♦ 19.5% of the human population likes change in their control and of their making

**Only** 5.5% of the human population loves change and embraces change regardless of its origin or who is in control



Leadership is the capacity to translate vision into reality.

Warren Bennis



People buy into the leader before they buy into the vision.

John C. Maxwell



## Fear Stimulates the Brain's Emotional Center



Change creates fear, and the brain's response is to limit our effort to that which we control and know we can be successful and, most importantly, reduce all risk.



## Fear Response and Impact of Positive Relationship Factors

#### Autonomic Fear Response



- The feeling of fright and associated psycho-physio responses
- Amygdala-driven stimulation



## Fear Mitigated By Relationship and Trust



- When supportive relationship-based behaviors from others are present, the hippocampus secrets oxytocin
- Oxytocin dampens the psychophysiological response and reduces fear and anxiety
- Oxytocin increases trust between those involved in the situation







## Module 4 So What?



























- 77% of Forbes 100 operate on a hybrid work schedule and moving to more days in the office (Buildremote)
- 2. 90% of companies across the country say they will return to the office by the end of 2024 but 5-day commutes are "dead" (CNBC/HRDive)
- 3. For the first time since the U.S. Bureau of Labor Statistics began tracking year-over-year quarterly labor productivity in 1948, the U.S. has seen **five consecutive quarters in decline**. (June 2022, U.S. Bureau of Labor Statistics)
- 4. Stanford research found that engineering teams working on the same project, in-person teams, had **20% more ideas and innovation**. In a separate study, multinational companies found inperson team ideas received higher ratings for originality. (Stanford University)
- In-office workers spend 25% more time on career development activities than remote workers. In-office workers spent 40 more minutes weekly mentoring others as well as 25 more minutes on formal training. (WFH Research)
- 6. Millennial and Generation Z employees place **more emphasis** on **spontaneous connections** with co-workers. (SHRM)
- 7. Remote workers who said they **felt a connection** to the purpose of the



their organizations fell to **28%**, the lowest level since before the pandemic (Gallop)





- 1. Hybrid environments may be here to stay with companies establishing the degree of virtual work based on each of their mission's operational requirements.
- 2. Innovation, critical analysis, decision-making, and speed of such are much more effective and efficient when team members are in person.
- **3.** Relationship building, culture, trust, and interpersonal influence are built much quicker and more deeply in person.
- 4. **Personality style** has much to do with an individual's interest in the ratio of time preferred in the office compared to working virtually.
- 5. Collaborative efforts and synergy are more efficient and effective when team members are in person.
- 6. There remains significant resistance by employees coming back into the office.
- 7. Career development, retention, and promotions occur at a higher rate with those inperson compared to those who are virtual, according to multiple studies, including Harvard, Stanford, and professional societies







- 1. Design and plan for employee re-entry into the office. Thoughtful, science-based human and organizational designs, with effective change management programs, are key.
- 2. Analyze jobs, roles, teams, etc., and then design appropriate in-person and hybrid operations and team designs. Be aware of the difference between an effectiveness design an efficiency design and create solutions that best meet the enterprise's mission.
- **3. Design, plan, and train staff.** Hybrid is mostly likely here to stay. Plan and implement organizational change projects, with supportive training, that lead to success with the transition and execution of in-office, hybrid, and remote operations.
- 4. **Provide leadership, communications, influence, and team training** to fast-track efficiency and effectiveness with in-person operations and the evolutionary change of the organization.
- **5. Design, plan, and train staff to optimize retention** and effectiveness. Resistance to returning to the office is rooted in emotional habits and laden with personal needs and expectations. Leadership skills and policies are key to success.
- 6. Create formal mentoring relationships for early-stage professionals and teams who may have little experience working in the office due to the pandemic.



*Every environment needs a customized hybrid organizational design* 



## An Example: Operational Designs for Different Types of Collaboration and Decision Making

#### **The Question**

How does a leader select and design an engagement strategy that optimizes the task at hand?

#### **The Algorithm**

Critical analysis, design, innovative activities, multidisciplined decision-making, multifunctional negotiations, and decision-making should be done in person.





## Critical Integration Training Program: KJI Communicating With Influence Course\*

#### BENEFITS OF REINTEGRATION TRAINING

- **1. Fast-track** approach to reintegration into the in-person and hybrid environments
- 2. Solutions for real-life issues are created and used as case studies
- Innovative and adaptive thinking are developed in the process of creating real-work communication and influence plans
- 4. 85% of the program is **experiential learning** to prepare for **instant implementation** back at work

Exploit individual decisionmaking styles to create sustainable value

Manage biases in the service of teamwork, creativity and innovation

Adapt to the communication

style of others to influence, lead and

optimize talent

Communicating With Influence

Influence for

sustained

change and

growth

Build trust and team synergy through relationship development



Core competencies for an in-person and hybrid work environment Use language that increases influence and reduces antagonism Build effective team dynamics leading to optimizing talent and synergy

## Intentional Operational Design: Choice of In-Person, Remote, and Hybrid





- 1. In-person engagements **are more effective** than virtual engagements. Humans are wired for in-person social interaction, and neural stimulation that occurs from casual contacts and receiving meta signals can only occur when people are co-present.
- 2. Virtual work is more efficient than effective. Design virtual operations that gain little value from collaboration and co-creation through collective intelligence is significantly compromised.
- 3. Hybrid environments require more deliberate and skilled attention to the design and leadership of business operations. **LEADERSHIP MATTERS.** The skills of the leader are critical to hybrid business model success.
- 4. Innovation and influence demand in-person relationship development and collaborative engagements for optimal success.
- 5. Humans are wired for social interaction, and those interactions create the foundation for all meaningful human activity. **Don't fight it; design for it.**
- 6. Leadership and team training and education, and modest organizational design modifications are keys to success for re-entry and hybrid environments







## The Three Keys To Effectiveness in Today's Business Environment

1. Utilize the Neuroscience of Collaboration to Optimize Individual and Collaborative Performance



The Law of Physics of Human Behavior



2. Align the Design of the Organization and Operations to the Demands of the Business

3. Deliver Education, Training, and Development for Leaders, Teams, and Individual Professionals to Optimize Performance in the New Models















# Your thoughts and questions?













## About The Knowles Johnson Institute of Graduate Studies





#### VISION

The Knowles Johnson Institute of Graduate Studies produces practitioners who will make realworld impacts as expert **architects**, **navigators**, **and next-generation leaders** focused on the design and development of global organizations that need to sustain success in an unpredictable world.

#### STUDENTS WILL BE TRANSFORMATIONAL EXPERTS AS....

- Global Business Leaders and Chief Human Resource and Chief Learning Officers
- Business and Community Organization Leaders and Consultants
- Adult Learning and Organizational Development Experts
- Global Consultants and Board Advisors
- Transformational Change Leaders
- Corporate and University Educators
- Innovative Professions of Their Own Creation





#### **Masters and Doctoral Degrees**



#### **KJI UNIQUENESS**

- Only university in the country with its curriculum and modalities
- Fully in-person, with weekend intensives
- One-on-one faculty student ratio with a mentored mastery model
- Students pursue at their pace, applying all course work in the context of their choosing
- 10 optional specializations

#### WHO ARE KJI STUDENTS AND FACULTY?

- Students are mid- and third-career experienced professionals with aspirations to make a difference in the lives of others and the companies, organizations, and communities of which they choose to serve
- KJI is designed to be accessible and supportive of **veterans and single parents seeking** to transform their personal and professional lives
- Faculty are **global**, **world-class practitioners** dedicated to adapting the learning experience to the unique needs and contexts of each individual student.

"The two most important days in your life are the day you are born and the day you find out why."

Mark Twain





#### THE KNOWLES JOHNSON INSTITUTE OF GRADUATE STUDIES CORPORATE AND NON-PROFIT PRACTICUM AND INTERNSHIP PARTNERS

#### Field-Based Experiences

- Integrating field-based experiences with their interdisciplinary education is **a key aspect of producing world-class talent** at a time of profound global change and economic ambiguity.
- Real-life application opportunities in which the partner company or non-profit organization receives mission-critical services from talented mid-career doctoral students.
- **Practicums are at no cost** to the client and pro bono internships are available for non-profit partners.







#### Can Your Company Benefit from KJI Expertise?

Does your company or organization have complex problems to solve, reoccurring challenges that won't seem to go away, talent development needs, or leadership coaching requirements?

A KJI mid-career doctoral candidate skilled intern may contribute greatly to the solution.

Email: INTERN@KJIGS.ORG.

#### **Partner Services and Benefits**

KJI corporate, governmental, and non-profit organization partners **identify specific projects, problems to solve, and services needed,** where KJI students will apply the breadth and depth of their program specialization in support of their client organization's goals. Support areas could include **national and global**:

- Organizational analysis and design
- Design and manage organizational change projects
- Leadership coaching and development
- Talent development
- Team analysis, development, and team building
- Instructional design and development
- Performance analysis and design
- Motivational program design
- Design and analysis of employee survey





#### THE KNOWLES JOHNSON PROFESSIONAL EDUCATION SCHOOL

Professional Education School programs provide concepts, methods and tools offered in the **Doctoral program** in an application model to provide immediate skills to be applied in their unique work environments. Every course uses **participant-provided case studies** the ensure the context of their learning is aligned with their professional demands.

#### CORE PROFESSIONAL EDUCATION PROGRAM PRINCIPLES

- Instructors are practitioners with deep experience as executives and professionals experienced in global business
- All learning is in the context of the student's work environment
- Courses are designed based on the latest research in adult and the neuroscience of learning
- 80%+ of each course is experiential employing student case studies
- Students earn CEUs and other professional certification credits







All PES proceeds fund scholarships, research, and student learning opportunities

#### LEADERSHIP AND CONSULTING SERVICES

- Executive coaching and mentoring
- Organization analysis and design
- Global organizational change
- Talent assessment
- Employee and culture surveys

#### COURSE TOPICS AND CERTIFICATE PROGRAMS INCLUDE...

- Leadership
- Communications
- Influence
- Diagnosing and managing conflict
- Change leadership and management
- Team leadership
- Team development
- Global organizational analysis and design
- Design of global virtual teams
- Project management
- Leading effective meetings
- Designing teams and organizations for innovation





#### LAST CHANCE! YOU CAN BE A VISIONARY BENEFACTOR

The Knowles Johnson Institute of Graduate Studies has raised and invested over \$1.7 million since starting the development of our aspirational university 10 years ago. Your financial support can help us raise the last \$300,000 necessary to fully launch university operations.

#### Your donation will make a difference in the lives of many students and those that they serve.

#### WHY SUPPORT KJI AS A FOUNDING BENEFACTOR?

- You will directly make a difference in the lives of others, including the future of our communities' and the companies and organizations our students serve
- Donations are deductible, KJI is a 501(c)(3) non-profit university
- Association as a **visionary** in launching a pioneering university

#### A PDF OF THIS PRESENTATION FOR A \$300 DONATION







#### A ONE-TIME HISTORIC GIFT FOR A AT LEAST A \$300 DONATION



#### WHAT YOUR INVESTMENT IN KJI MAKES POSSIBLE

- Need-based single parent and veteran scholarships
- The licensing and implementation of academic and research technologies
- Creation of global practicum opportunities for students
- Funding of collaborative research efforts with corporations, non-profits and medical organizations related to the neuroscience of leadership and human performance
- Funding the research and development of KJI specializations that include: Science of Adult Learning, The Neuroscience of Learning and Human Change, The Design of Healthcare Organizations, and Global Organization Design and Development





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