NEUROLEADERSHIP IN VIRTUAL WORKSPACES: THE ROLE OF TRUST, PSYCHOLOGICAL SAFETY, AND EMOTIONAL INTELLIGENCE IN REMOTE TEAMS

by

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DISSERTATION

Presented to the Swiss School of Business and Management Geneva

In Partial Fulfillment

Of the Requirements

For the Degree

DOCTOR OF BUSINESS ADMINISTRATION

SWISS SCHOOL OF BUSINESS AND MANAGEMENT GENEVA

MAY, 2025

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Dedication

This dissertation is dedicated to all the wonderful mentors, coaches, bosses and colleagues at General Electric where I learnt much about leadership skills and human performance consulting, and IBM and Bank of America where I got to fine tune my skills and experience; as well as develop and grow future leaders scientifically while having a ton of fun.

Acknowledgements

This thesis owes gratitude to my mentor guide Dr Kishore Kunal for his calm supportive presence; Dr Ram Prakash for his assistance and insights with my research focus area and approach to data analysis; Shilpa Joshi, Transformation Coach whose constant encouragement in the last six months held me strong to reach completion.

ABSTRACT

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2025

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This study examines the influence of neuroleadership practices on employee performance in virtual workplaces, mediated by trust, psychological safety and emotional intelligence. A quantitative approach was used to guide this exploratory research project to gain insights and understanding on the interlinkages between the variables and constructs. Descriptive statistics scoped the demographic and sampling population. Primary and secondary research methods informed the process to validate both the measurement model and the strength of the theoretical framework. An extensive literature review allowed scoping and focusing the research from taking it from a generic study to a more specific one that bridges academic research and practice on one of the most relevant leadership models in the last decade. It moved beyond generically looking at leadership to examine new competencies and models in the new world order, where AI and digital transformations are out of the confines of information technology departments and

shaping corporate and business culture in new ways. Together, they have pushed human potential to new frontiers waiting to be discovered in the post pandemic world. In turn bringing focus to human performance and how best to allow it to thrive in new constraints.

The findings established with reasonable clarity that neuroleadership influences employee performance both directly and indirectly, through its positive impact on emotional intelligence, trust and psychological safety. Each mediator represents distinct but interrelated psychological mechanisms that enable effective leadership in virtual work environments. The model has been tested and is valid for future researchers and corporations to invest in mediators and moderators of choice to determine what's best for them. It is intended for this study to influence the way human talent is developed and shape leadership strategy in the future. It is limited in its purposive sampling and reliance on self-assessment that may allow unconscious biases. It will however be useful in studies that want to dive deeper into the neuropsychology and neurocognition aspects of human talent and potential, and leverage the brain's ability to adapt and rewire behaviors through neuroplasticity. And seek to push the imagination of those working on new leadership models that will drive businesses in the next decade to maximize performance in a self-regulated manner that also influences others.

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CHAPTER I

INTRODUCTION

1.1 Introduction

"Ideas are fleeting. But sound reasoning lasts forever." – John Nash, Nobel prize winner and author of the shortest doctoral dissertation in history that was the basis of Game Theory.

There has never been a better time to be a leader, nor worse. The tumult caused by the pandemic has turned governments, corporations, monetary systems, medical care, transportation, ecological systems and all tangible development constructs on its head. And those who led all these systemic domains were either hailed as heroic through those 18-24 months, or confounded with failure that a force de majeure brings. The leadership lessons from this new normal are still being understood and it seemed like a good time to reflect on the behaviours and characteristics that executive leaders used to successfully steer businesses.

There is ample research supporting the role of neuroscience in metacognition. In fact, having behavioural skills that allow one to change one's mind may allow for rewiring the brain to become more plastic, more malleable, more agile (Corbett, 2014). In 2020 and 2021, businesses were disrupted and taken by surprise. In 2022, there is more intentional business planning and strategy, 2023 is the year of defining what type of leadership will be required to execute these business strategies, going forward. Geo-politics, AI in technology, and climate change are changing the world. Korn Ferry's *Future of Work trends 2022: A new era of humanity* (2022) report announced the shift in workculture very concisely, 'Power has shifted. From organisations to people. From

profit to mutual prosperity. From “me” to “we”.’ As ‘new models’ get shaped and new rules get established, it is going to be a while before the uncertainty and ambiguity and fragility settle into the new normal.

The number of variables in the operating system for leadership are high. Skills like resilience, change management, adaptability, digital and technological acumen are already predicted (Kropp and McRae, 2022). The Conscious Leadership model has well-being as a large component – used for brand building and competitor advantage as well as societal development. Leadership that takes into account working with the fears and aspirations of collective consciousness in an offline and online relationship with the workforce may need to be more intrinsically motivated, as external motivations get harder to access. The better the leadership effectiveness, the better the organizational performance (Feser *et al*., 2018)

Neuroscience that has been on the periphery of leadership models and conceptual models for the last decade and a half, can be called upon to meet this new challenge of creating a leadership development protocol that is easily transferable across different training and coaching formats. It also needs to be intrinsic and relevant for times to come. Exploring neuromotivation, neuroplasticity, neurohacking and rewiring the brain to optimize leadership behaviours may provide the way forward to a new leadership with a purpose model, that is relevant in the same way sustainable development is an imperative to advance the world. There could be many unexplored neuro-tools and protocols waiting to be discovered that will allow the human psyche to explore its fullest potential through the unconscious mind which is yet to be tamed.

1.2 Research Problem

In 2022, we expected to see more and more organizations waking up to the reality that science alone will not get them where they need to be. Meaningful transformation requires changes in mindset and skillsets.There appears to be a gap there that is waiting to be explored.

Knowledge of workforce behaviours and preferences could be a valuable aid in the development and prediction of skills and mindset that future leaders need to demonstrate. For instance, according to the *Rethink 2022 Global Culture Report O.C. Tanner Institute, (2022)*, collaborative tasks or tasks that require a lot of communication and connection are better managed from the office, while tasks that involve creative thinking or focus can be easily done from home. In turn leaders require a whole brained approach that tackles logic and process with the same ease as creativity. These are needs of the future workplace. More evidence on the need for whole-brained leadership comes from the data that 69% of the world's most admired companies value learning agility and curiosity, originality/value over career history and experience when it comes to hiring. (*Future of work trends 2022: A new era of humanity, 2022,*p.7). How does one measure and establish it in existing leaders and see it as a pre-requisite for leadership potential, could be an area to study further.

Though generic understanding is available, the studies done on the neuro-leadership collaborations are far and few, lending credence to the 174 research gaps that exist in this particular area. (Isaac, 2019).

An intentional contribution of this thesis would be to underline the present status of the literature on neuroscience and leadership research and to develop a reference for future opportunities. This study attempts to make this document a vade mecum for both

the industry and the academia in the area of neuroscience and leadership research. This establishes the need implicitly for more research work in the area.

For over a decade now, it has been known that the ability to improve people's thinking was central to leadership (Rock, 2010). In turn, improved thinking could be used to channel behavioural change (Dweck, 2017). As contemporary research emerges, leadership training could focus on a brain-based approach, allowing individuals to identify their problems and unravel their true potential (Melwin Joy, 2018, pp. 57–59). For example, many of the leadership models taught in business schools have focused on rational decision-making in which emotions are viewed as detriments or obstacles to making good decisions (Clawson and Bevan, 2021). The primitive emotional center of the brain always does its work before the thinking and problem-solving part of the brain kicks in (Corbett, 2014, vol. 12). Getting familiar and self-aware about their own emotions and others maybe significant to the leader and employee dynamic, but harder to do in virtual environments where connectivity is limited or sensory perception is either auditory or visual.

Let's look at this intersection of brain function and thinking and behaviour change in the context of a single desirable competency at the workplace. In its 2016 global CEO survey, PwC reported that 55% of CEOs think that a lack of trust is a threat to their organization's growth. But most have done little to increase trust, mainly because they aren't sure where to start (Zak, 2017, p.4). Experiments show that having a sense of higher purpose stimulates oxytocin production, as does trust. Trust and purpose then mutually reinforce each other, providing a mechanism for extended oxytocin release, which produces happiness.

In the midst of the pandemic, consulting firm Gartner surveyed 52 HR executives and found that: 94% of companies made significant investments in their well-being

programs, 85% increased support for mental health benefits, 50% increased support for physical well-being, 38% increased support for financial well-being. (Kropp *et al.*, 2022). There is recognition at the workplace of wellbeing as a fundamental pillar in the organisations' culture and employee engagement. Taking it a step further and pondering over if wellbeing is a precursor to happiness or are wellbeing and happiness and a chicken and egg story is deemed interesting and purposeful and this study may explore that connect.

Leadership is often the number one human capital or talent management priority for CEOs. Management Consulting firm McKinsey's report since widely published confirms that effective leadership is important for organizations, and leadership development is a top three priority overall.(Feser *et al.*, 2018). Latest research showed that a third of organizations do not feel they have the quality and quantity of leaders to execute their strategies and performance objectives. The problem goes deeper, as an additional third of organizations state that they do not have the leadership capacity needed to take them through the next three to five years, beyond the near-term strategy and performance objectives. Addressing that reason alone is an important purpose of this research.

One key appeal of using neuroscientific methodologies is related to brain plasticity, that is the notion that the human brain is capable of learning by way of neuroscientific interventions, even in adulthood. And yet, how this can translate into significant behavioural changes (for example, turning an uninspired leader into an inspirational leader) is a matter far from being conclusively resolved (Lindebaum and Jordan, 2014). Perhaps the time is now right to bridge this gap between brain plasticity and behavioural change. Introducing neural substrates into leadership effectiveness

(McCreedy, 2024)could be a game changer in transformations and change management and performance.

1.3 Purpose of Research

Leaders are recognizing the way forward. The ‘right’ attitude and mindset seem imperatives in the leadership toolkit. “A person who is happy is not happy because everything is right in his life. He is happy because his attitude towards everything in his life is right’’, according to Sundar Pichai, CEO Google. At first glance, the right attitude includes resilience, agility, storytelling and great personal courage, along with a generous dose of Gardner’s (2006) existential intelligence. Having escaped most of Gen X in their prime work years, Existential intelligence centers around the big questions of life around purpose, meaning of our existence and our place in the Universe. All of these are relevant in today’s world and on the minds of the current workforce of Gen Y or Millennials and Gen Z.

Research in the last 3-5 years does indicate leadership traits like trust, work with a purpose, emotional intelligence, connections, agility, resilience and deep work and focus, are the need of the hour. And what’s even better is that it is now known that plasticity in neurons allows humans to cultivate them. More evidence-based research is required to make this more acceptable in the mainstream workplace skill development narrative.

This study intends to focus on the factors and pathways to accelerate those traits in Leaders to equip them to maximize their potential and be effective. Neuroscience evidences neuroplasticity and concepts like neuromotivation and neurohacking as actions that can be performed in a non-medical non-invasive way, and as practically applicable

beyond the world of academia research and clinical laboratories. Neuroplasticity does allow for creating new neural pathways in the brain, Bratianu and Staneiu (2024) even in adulthood, enabling us to learn new behaviours, over-riding old ones, never re-writing them though.

Leaders along with first responders and many other professionals who do critical decisioning, problem solving and are responsible for people and financials are likely to benefit from operating in extreme situations from their parasympathetic nervous system, while also mastering how to pull up their sympathetic nervous system or fight or flight response at will.

Research on the long established Polyvagal theory (Neurscientist Stephen Porges work from 1994) and Multiple Intelligence theory (Psychologist Howard Gardner's work from 1983), have evolved to tackle the new trends of providing psychological safety and relying on intra-personal awareness and existential intelligence. Measuring these could be a challenge worth considering as well as exploring the work done in this area and linking them to effective leadership traits.

Qualitative and/or Quantitative research will temper that hypothesis and if successfully evidenced, fructify as a protocol or new leadership model that can advance the field. It may allow us to make new hypotheses on nature versus nurture and how to use both to create "effective leaders' If unproven, it will still lead to a valuable footprint on the gap that will at best keep leadership training basic and undiscovered and piecemeal.

The rules of the game of leadership are changing. The global pandemic brought with it changes to biology, politics, agriculture, culture and personal relationships and a heightened awareness of the cosmos and something larger than ourselves, which created collective consciousness and which will govern sustainability. From academic to

ideological perceptions, everything is turning on its head. The world is in sympathetic overdrive, Dr Deepak Chopra, renowned author, endocrinologist and integrative medicine specialist declared in 2022. Sympathetic overdrive, now commonly known, is nervous system deregulation caused by prolonged stress where the fight or flight response of the human body is chronically activated. A deep dive into the term's origins in research literature did not attribute it to any scientist, but it is referred to as a main driver of metabolic disorders in an article in the scientifc journal *Nature* in 2006. Indeed it, sums up the need to look at people through the lens of their nervous systems, albeit not in isolation but in a more integrated way with the rest of our physiology, psychology and behavioural biology.

There is a whole new vocabulary come into use – alternate, well-being, off-line – even though 'alternate' food, schools, medicine, healing are returning us to the past, it belies a personal belief that the world's operating system is cyclical. Mainstream is not Alternate. It has also caused us to turn inward from being focused always on what we can change in the world outside, from extrinsic to intrinsic motivation. Contemporary neuroscientist Andrew Huberman and biologist Bruce Lipton have lent credence to the need to explore neuroscience and behavioural linkages, through a more evolved and measurable understanding of our hormones, neurotransmitters and even stem cells and their linkage to our emotions and wellness and responses. Most of their work is widely quoted in the public domain.

1.4 Significance of the Study

This research intends to present an approach to effective leadership arrived at by rewiring the brain. Studying the literature also helped arrive at variables that help with

this rewiring, which is primarily having self-awareness and self-regulating when pushed into or perceived fight or flight mode. In these modes, the brain's limbic system is activated and performance at all levels is impacted. This study will endeavour to piece together a very practical, easily replicable and learnable mode;/guide/protocol that will be based on measuring and calibrating internal and external sensory experiences, felt through the body and mind. It will most likely be modelled on a key input into effective leadership, that will come from befriending one's own nervous system and finding our way home to a conscious existence that puts leaders in the best mindset to create "group coherence".

Dan Siegel (1999), socially renowned Professor of Psychiatry, talks of the mind also being relational to the body and others in his book, The Developing Mind. A whole set of inter-neural connections exist deep within the brain and how those connections and their neurochemistry can be harnessed in the service of better leadership hold the key to a radical approach to a re-engineering of leadership and leadership styles (Melwin Joy, 2018). When it all comes together, it is hoped this work will provide a solid construct that allows for the strengthening or even creation of a leadership mindset that functions optimally in different environments and situations in times to come.

1.5 Research Purpose and Questions

This study will seek to measure concepts like psychological safety and trust with a view to link them to specific leadership traits. Theoretically, it is known that a large part of managing the self comes from the emotional responses of a human. These are shaped in the brain's limbic system which scans sensory data received in the body from the outer environment. This data in turn moves a human to or away from the external stimuli.

This is possibly the simplest explanation of how problems are resolved, motivation works or stalls, conflict happens or is solved and even creativity and agility and more complex actions could result from the response to stimuli.

It is intended to examine their interface with models of mind and brain-based leadership approaches to lend credence to the idea of whole brained development and explore if a series of chemical reactions can even influence behavior at the workplace in anyway. The end objective or question to answer is on finding an accelerated pathway to trigger human performance while harnessing human potential to drive productivity and creativity and fuel the talent resource pool in an organisation. This could involve picking up future skill competencies that will uniquely shape the workforce in an AI world.

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

Leadership continues to be a complex and often elusive concept, with many experts and practitioners struggling to define its true essence. Despite the vast amount of information available on leadership, a coherent and universally accepted definition remains difficult to pinpoint. Searching for “leadership” on platforms such as Wikipedia, Google (over 4.2 billion results), and Microsoft Bing (1.19 million results) reveals numerous references to different genres of leadership—ranging from political-followership to corporate visionary leadership—yet a singular, clear definition often evades discovery. Further, in academic literature, leadership is commonly portrayed as a multifaceted concept, influenced by diverse elements such as individual characteristics, social dynamics, and organizational context. The confusion surrounding leadership is amplified by the use of vague terms and the absence of clear operational definitions that can be universally applied.

The role of neuroscience in understanding leadership, however, has emerged as a promising avenue for research. As we transition into a world increasingly shaped by artificial intelligence (AI), the need to redefine leadership and identify new competencies becomes crucial. This literature review critically examines the intersection of neuroscience and leadership development (LD), focusing on the role of neuroplasticity and the concept of "rewiring the brain" to foster effective leadership in an AI-driven environment. Specifically, this review explores the following questions:

1. How, if at all, does the anatomy and physiology of the brain contribute to personal growth, and can these mechanisms be applied to leadership development?
2. What is the definition of neuroplasticity, and how consistent is its application in leadership contexts? Furthermore, how can the concept of neuroscience and rewiring the brain be applied to leadership development?
3. What is the connection between leadership development, neuroscience, and consciousness, beyond just anatomy and physiology?
4. How do global trends, particularly the rise of AI and virtual workplaces, influence the way human talent is developed and invested in as a future-forward leadership strategy?

The need for effective leadership has never been more pressing, as organizations must keep pace with rapidly advancing technologies. A growing body of research suggests that effective leadership in the new world order demands not only a relook at traditional leadership competencies, but also an understanding of the brain's ability to adapt and change. The literature surveyed shows that over the last five decades, effective models exist and have enjoyed their share of loyalists - Transformational leadership (Burns, 1978), Inclusive leadership (Edmundson, 2006), Servant leadership (Greenleaf, 1973); and Neuroleadership (Rock, 2008) among others. Their efficacy in the current environment is worthy of research studies and the need to do the same is showing up too, given the dearth of theoretical research in leadership till the global corona virus pandemic struck in 2018.

Neuroplasticity offers a new lens through which leadership potential can be unlocked, emphasizing the brain's capacity to rewire itself in response to new experiences

and learning. Neuroscience allows us to go inside the brain and investigate primal causes of behaviour. Though attaching social predicates to a set of chemical reactions in the brain and body was considered absurd less than two decades ago. Interestingly, there are biblical references addressing the link between altering thinking and renewing our mind (Leaf, 2013). Perhaps, the missing link in all this is evolving and adopting a multidisciplinary approach (Butler, 2017) which can be achieved by Organisational Cognitive Neuroscience (OCN). Not yet a buzzword, it has potential to link all the social and biological and evolutionary sciences to achieve Metacognition.

Piecemeal bits of neuro-prefaced experiments in different industries like sports, education and even organisational management have been successful in bridging the gap between academia and practice to a small extent. Neuroeducation, has some traction in recent years and it has since been established that educating and training teachers on neuroscience can help them build better relationships with students as well as improve their pedagogy in many ways around retention, memory and managing stress (Brick, *et al.*, 2021). Neuromanagement, has surfaced in a number of research articles and industry journals in 2024. It draws heavily on neural postulates and marries them in a construct to neuroleadership traits and stress, motivation and other behaviours, with a view to improving organisational effectiveness(Aithal and Satpathy, 2024).

Another consideration that comes from the confluence of neuroscience and management is that with marketing. Are there set limitations for the ethical use of neuromarketing (Bansal *et al.*, 2023) and does it result in exploiting or manipulating human behaviour. This could apply in extreme situations to managing behaviour for employee performance too. Understanding these mechanisms is essential for developing leaders who can thrive in an increasingly complex and AI-driven landscape. Critical thinking, agility, the pursuit of goals and making reasonably considered judgements and

decision are all par for the course in the leadership arena in the tech driven corporate arena.

This review attempts to examine key themes and perspectives in the literature, including the role of neuroscience in leadership development, the definition and application of neuroplasticity, and the broader implications of AI and virtual teams on leadership competencies. It is exploratory and investigates research questions not previously studied in depth. By critically assessing these areas, the review aims to provide a comprehensive understanding of how the brain can be "rewired" for effective leadership in the context of a rapidly changing world.

2.2 Theoretical Framework

A theoretical framework, which Eisenhart defined as “a structure that guides research by relying on a formal theory’’, is akin to creating a blueprint for a house before construction is started (Grant and Osanloo, 2014). The theoretical framework adopted in this study truly served as a base or foundation on which to lay the thesis research questions, purpose and scope our problem statement. But even more, it provided the cement for the foundation of the study by anchoring the knowledge base of the practitioner researcher and anchoring personal beliefs around brain-based leadership and future skills, formed over two decades of practice.

The theoretical foundation of this study is anchored in the integration of Neuroleadership theory, Social Cognitive Theory, Psychological Safety Theory, and Emotional Intelligence (EI) theory. These theories will be a base or blueprint to explore the leadership dynamics that influence trust, psychological safety, and emotional regulation within virtual workspaces. Together these theories provide many of the answers and rationale to the questions this literature review aims to raise and focus upon.

They are also enablers to develop a more focused construct to scope out an impactful and pertinent research proposal.

1) ***Neuroleadership Theory:*** Coined by David Rock (2007, 2009), Neuroleadership emphasizes the application of neuroscience findings to leadership development and organizational behavior. The SCARF model (Status, Certainty, Autonomy, Relatedness, and Fairness) within neuroleadership theory posits that human behavior in workplace interactions is strongly driven by the brain's response to social threats and rewards. In virtual environments, where social cues are limited, leaders must intentionally promote relatedness and fairness while reducing ambiguity and threats to autonomy and status. This model becomes a crucial tool in guiding leadership behavior to optimize psychological engagement and performance in remote teams.
2) ***Psychological Safety Theory***: Amy Edmondson's Psychological Safety Theory (1999) underlines the importance of creating an environment where individuals feel safe to express opinions, ask questions, and admit mistakes without fear of negative consequences. Psychological safety becomes even more critical in virtual teams where lack of physical proximity can increase feelings of isolation and reduce informal communication. Neuroleadership provides mechanisms—such as empathy, reflective listening, and inclusive decision-making—to reinforce a psychologically safe digital workspace (Tan *et al.*, 2021).

3) ***Social Cognitive Theory:*** Bandura's Social Cognitive Theory (1986) explains behavior through the reciprocal interactions between personal factors, behavior, and environmental influences. Leaders in virtual teams shape the environment by modelling behaviors that support trust and emotional regulation. When leaders demonstrate cognitive empathy, integrity, and transparency—core aspects of neuroleadership—they influence team norms and expectations. This theory supports the idea that leadership behaviors can be learned and replicated, making it relevant to virtual team settings where modelling and reinforcement are key.
4) ***Emotional Intelligence (EI) Theory***: Goleman's Emotional Intelligence Theory (1995, 1998) frames emotional intelligence as the ability to perceive, understand, manage, and regulate emotions—both in oneself and others. Emotional intelligence is essential for leaders managing remote teams, as non-verbal cues are diminished and miscommunication is more likely. Leaders high in EI are more likely to foster interpersonal trust and psychological safety, as they can detect emotional cues even in virtual environments and respond with sensitivity and empathy. Neuroleadership complements this theory by providing a brain-based understanding of how emotional triggers influence behavior and decision-making.

2.3 Theory of Reasoned Action

For this study the Theory of Reasoned Action (TRA) was a good fit. As a social psychology theory that explained the relationship between attitude, intention and behaviour, TRA provided our literature review the appropriate framework for exploration. It gave us context to understanding and predicting behaviours, while

exploring a phenomenon to gain better understanding of how it can be used in the future. Given the exploratory nature of our study and the quantitative approach to research and data analysis, TRA helped evolve the theoretical framework and input needed for the structural model as we researched old and new constructs. It also provided the study with a base to consider individual attitudes and subjective norms as our primary data was based on independent individual inputs gathered through a survey questionnaire, independent of organisational and industry power dynamics. As compared to TRA, the Theory for Human Society would have involved looking at social structures, power dynamics and cultural norms which were out of scope for this study's frame of reference. The possible limitation of TRA is that it does not consider factors beyond individual attitudes and norms, such as perceived behavioral control or personality traits. The research methods selected needed to steer away from any such bias that may have been created by this limitation.

2.3.1 The Role and Impact of Neuroscience in Shaping Leadership

The Brain's Anatomy and Physiology in Personal Growth and Leadership Development: The brain's anatomy and physiology are often linked to personal growth, with many studies suggesting that the brain's structure can change in response to new experiences and learning. Neuroscience and technology allow us to study fields of coherence through neurofeedback (Aboiron, 2022) which can be used to regulate the body. The Pre Frontal Cortex region in the brain, which is right behind the forehead processes information in a serialized manner, and is easily distracted. It has many important functions and takes in new information from sensory inputs and also responsible for balancing emotions and decision-making. Since the brains main purpose

is survival, it will go as far as to change its perception of reality to survive. External influences like stress can give it memories to repeat neural circuits that are wired for survival, even after the perceived threat is long over. That is where the rewiring can begin. Creating psychological safety or reclaiming it (Fransen, et al., 2020) can mediate pathways to self-regulate that avoid burnout even in stressful situations and kept the team together while feeling resilient.

Neuroplasticity, the brain's ability to reorganize itself by forming new neural connections, is central to this process. Understanding how neuroplasticity impacts personal growth provides valuable insights into how leadership development can be enhanced. If personal growth is linked to changes in brain structure and function, then leadership development (LD) may similarly benefit from these processes. As leaders face new challenges and responsibilities, the brain's ability to adapt becomes critical in their development and effectiveness.

Defining Neuroplasticity and Its Application to Leadership: Neuroplasticity is often defined as the brain’s ability to reorganize itself by forming new neural connections, particularly in response to learning and experience. However, there is some variability in how neuroplasticity is defined across different disciplines and contexts. In the realm of leadership development, the application of neuroplasticity suggests that leadership skills can be cultivated by deliberately engaging the brain in activities that promote learning and adaptability. The concept of "rewiring the brain" for leadership is rooted in this idea, as it proposes that individuals can reshape their cognitive and emotional responses to challenges in ways that enhance their leadership capabilities.

However, the consistency of neuroplasticity's definition in leadership literature remains debated. Some scholars argue that neuroplasticity is an over-simplified or misinterpreted concept, while others assert its potential as a transformative force in leadership development. This review seeks to explore the various interpretations of neuroplasticity and examine its implications for leadership training and development.

For instance, the brain has five times more neural networks that process threats over rewards. Rewiring the brain and making it neuroplastic would involve creating workplaces that are virtual or physical spaces where a group of individuals feel inter-related and psychologically secure to trust each other and perform at a high level as a team. Fixing old habits may not work, creating new habits and practices that are put into the conscious mind through repetition by play and practice could hold the key to successful teams. Using the Wechsler Adult Intelligence scale IV, one could posit that neuroplasticity can be used to enhance cognitive ability at the level of verbal comprehension, working memory, perceptual reasoning or even processing speed. So, there are various ways to approach this once we find a leadership model which interacts with mediators that influence or reflect the states of the limbic brain and the pre-frontal cortex.

The Connection between Leadership Development, Neuroscience, and Consciousness: The connection between leadership development and neuroscience extends beyond anatomy and physiology, involving a deeper exploration of consciousness and its role in leadership.

Consciousness—the state of being aware of and able to think about one's own existence—plays a central role in decision-making, emotional regulation, and social interactions, all of which are critical aspects of leadership. Neuroscience offers valuable

insights into how conscious awareness can be cultivated, thereby enhancing a leader's ability to engage with their team and make informed decisions. As researchers look for the “neural correlate of consciousness”, (Lamme, 2010) postulates that finding it will not solve anything, implying in the scientific world.

Delving into the role of consciousness in leadership, examining how it can be developed through neuroscience-informed practices such as mindfulness and cognitive training maybe the breakthrough needed. In the last decade, many researchers have stated the gap in people management between theoretical concepts and workplace practices (Zwaan, Viljoen and Aiken, 2019) and the need to bridge them. By integrating neuroscientific insights into leadership development programs, leaders can improve their self-awareness, emotional intelligence, and overall effectiveness.

Global Trends: AI and the Future of Leadership Development: As artificial intelligence continues to evolve and shape the global landscape, the role of human talent in leadership development becomes even more critical. AI offers powerful tools for enhancing decision-making, automating tasks, and providing insights, but it also raises questions about the future of leadership in an AI-driven world. Leaders must not only adapt to technological advancements but also cultivate new competencies that will allow them to guide their organizations effectively in this changing environment.

The impact of AI on leadership development is yet to be seen, however the importance of corporate leadership and culture in the successful adoption and implementation of AI has been called out (Peifer, Jeske and Hille, 2022). It will require focusing on the competencies and skills needed to lead in the future. The development of these competencies is closely tied to neuroscience, as leaders must adapt their cognitive and emotional capacities to navigate the complexities of the AI-driven world. Rather a

sobering thought as until 2001 it was believed that leaders must rely on logic not emotions for decision making (Hummaira et al., 2017). Technology enhanced learning as advocated passionately by (Atherton, 2022) in his dissertation can be used to build new leadership behaviours making for a friendly amalgamation of technology and human potential.

2.3.2 Trends in Neuroscience and Leadership

In recent years, there has been a shift in how neuroscience is applied to leadership. While leadership was once seen through a reductionist lens, focusing on a straight forward dyadic relationship between the leader and follower, the emerging view now emphasizes the complexity of human behavior, drawing on interdisciplinary perspectives such as social neuroscience, neurobiology, and cognitive science. Leadership is no longer solely about the competencies of the individual leader but is increasingly seen in terms of dynamic systems involving the interactions between the leader, the followers, and the context. Neuroscience has provided significant insight into understanding how leaders' brain's function, how their behaviours' influence others, and how leadership itself can be developed through neuroplasticity.

A key trend emerging from neuroscience research is the growing recognition that leadership effectiveness is not just an intrinsic trait of the leader but is shaped by the environment and the perceptions of followers. For example, studies on transformational leadership suggest that its effectiveness lies in the perceptions of the followers rather than the behaviours' of the leader alone. Lindebaum and Zundel's (2013) study underscores this shift, showing that leadership ratings between team members often do not align with those given by the leader's superior. This finding clearly challenges traditional models of leadership and calls for a more versatile approach—one that considers not only the

leader's capabilities but also the relationship with followers and the broader organizational environment.

In the current global context, as economic, political, and technological landscapes evolve, the need for leadership that can adapt to rapid change is paramount. Technological advances such as artificial intelligence, blockchain, and digital transformation are reshaping industries and organizations. To maintain a competitive edge, leaders must be equipped not only with technical knowledge but also with emotional and cognitive flexibility to navigate new challenges and uncertainties. The future of leadership may thus rest on the convergence of human learning systems (HLS) and machine learning systems (MLS), with a focus on cultivating resilience, stress tolerance, and innovative problem-solving abilities in leaders.

Moreover, as immersive technologies like Augmented Reality (AR) and Virtual Reality (VR) gain traction, leaders will need to harness the full potential of their brains, particularly the prefrontal cortex (PFC), which governs decision-making, executive functions, and social cognition. The overstimulation of the PFC in such environments presents new challenges for leadership, particularly in terms of maintaining focus, emotional regulation, and cognitive clarity under pressure. (Balconi, 2021) refers to a recent neuroscience development, that of 'Hyperscanning' which allows for analysis of brain and body synchronization, between leaders and employees in real-time interactions. This could offer interesting new avenues for research where practice meets theoretical concepts.

Neuroscience also plays a crucial role in understanding leadership through its effects on the brain's reward system. Dopamine, often associated with motivation and pleasure, is also implicated in risk-taking behaviours—an important trait for leaders. Research by Dr. Anna Lembke, author of Dopamine Nation, highlights how dopamine

release is influenced by uncertainty and the unpredictability of rewards, which is crucial in understanding why some leaders thrive on risk and innovation. This aligns with studies showing that early career risks and successes contribute to the development of leadership abilities, as the brain encodes these experiences through neuroplasticity, creating long-term changes in neural circuits. Thus, understanding the neuroscience of risk-taking and reward systems can offer valuable insights into identifying and nurturing future leaders.

Furthermore, resilience and well-being are emerging as key competencies for leaders in the post-pandemic world. The COVID-19 pandemic, combined with global crises such as economic instability and political unrest, has exacerbated feelings of helplessness and stress, making it essential for leaders to model emotional resilience and guide their teams through uncertainty. Leaders in this context must help their teams navigate through pain and adversity, psychologist at Ambedkar University, India, Neetu Sarin suggests, drawing on intrinsic motivation and psychological strengths. This requires an understanding of the brain's capacity for emotional regulation, stress management, and recovery.

As leadership models continue to evolve, the integration of neuroscience into leadership development programs is expected to increase. Techniques like functional magnetic resonance imaging (FMRI) and quantitative electroencephalogram (QEEG) are already being used to examine brain activity in relation to leadership behaviours, providing new insights into the neural underpinnings of effective leadership. By understanding how the brain processes decision-making, empathy, and stress, organizations can better prepare leaders to meet the demands of the 21st century workplace.

Overall, the future of leadership lies in the interplay between biological, psychological, and technological factors. Leaders will need to be adaptive, continuously

learning and evolving through neuroplasticity, while also leveraging their cognitive and emotional intelligence to foster resilience, collaboration, and innovation. As the boundaries between human and machine intelligence blur, the ability to navigate these complexities will define the leaders of tomorrow.

2.3.3 Willpower and Neurobiology in Leadership Development

A future-ready leadership model necessitates understanding the genetic and neurobiological foundations of leadership traits. One such trait, willpower, plays a crucial role in leadership acts. Willpower is not only a genetic capability but can also be developed through raised awareness and disciplined practice (Karp, 2014). The research suggests that willpower, being a mental capability, is significantly influenced by time and energy management, awareness of emotions, and the physical balance of nutrition and rest. Moreover, engaging in physical or mental practices can help enhance one's willpower. This research opens the possibility of harnessing neurobiology to systematically develop leadership behaviors. Neuroplasticity, or the brain's ability to reorganize itself, offers a potential mechanism for leaders to adapt and enhance their leadership qualities through habitual practices and continuous learning (Karp, 2014).

Furthermore, a process view of leadership, as Crevani (2010) and other researchers have worked on for decades, underscores that leadership is the result of a dynamic series of interactions, rather than merely an outcome of individual traits like intelligence, vision, or transformational abilities. The ability to confront uncertainty, resistance, and opposition seems more critical than conventional attributes often emphasized in mainstream leadership models. In challenging situations, a leader's ability to persevere and navigate through adversity becomes the defining characteristic, in line with Martin Luther King's belief that true leadership is tested in times of controversy and

challenge (Karp, 2014). Our focus however is away from political and other forms of leadership, not stepping beyond the corporate landscape.

2.3.4 Post-Pandemic Leadership Context: The Need for Theoretical Advancement

The COVID-19 pandemic profoundly affected the global workforce and business environment, underscoring the necessity of evolving leadership theories to address the new challenges of the post-pandemic era. The notion of "coronafication," or the process of adapting academic and organizational psychology to the realities introduced by the pandemic, highlights the need for pluralism in research methodologies (Pérez-Nebra *et al*., 2021). This includes integrating the effects of the pandemic on leadership, work practices, and organizational structures into the discourse of leadership development.

Moreover, the pandemic forced a reconsideration of how leadership is exercised in a world of increased virtual work, hybrid teams, and heightened uncertainties. In this new reality, leaders must develop a multifaceted skill set that includes traditional leadership competencies along with digital literacy, emotional intelligence, and resilience. Leaders will need to steer organizations through prolonged challenges, focusing on adaptability and innovation rather than merely operational stability.

2.3.5 The Role of Subconscious Mind and Atomic Habits in Leadership

Leadership development can also benefit from insights into the subconscious mind. Techniques like visualization and mental engineering (Murphy, 1963) have shown that focusing on mental pictures and desired outcomes can reprogram the subconscious mind, influencing leadership behaviors. The concept of "Atomic Habits," introduced by James Clear, emphasizes the importance of small, consistent changes that can lead to significant leadership growth over time. These habits, which strengthen the discipline

required for balancing creativity and logic, provide the foundation for effective leadership in complex and uncertain environments.

In addition to subconscious training, psychometric assessments can offer valuable insights into an individual's readiness for leadership roles. These assessments, when used at the right time, can help identify key leadership potentials and areas for development.

2.3.6 Neuroplasticity and the Evolving Nature of Leadership Competencies

A significant development in leadership studies is the recognition of the role of neuroplasticity in shaping leadership attributes. Neuroplasticity allows for the development of essential leadership traits such as creativity, empathy, and clarity (Gheerawo *et al*., 2020). These competencies, which were once believed to be innate, can no be cultivated through continuous learning and practice. The neuroplasticity model introduces a process-driven approach to leadership development, where intrinsic motivation and the ability to tap into innate creativity play pivotal roles in leadership transformation.

Leaders who are intrinsically motivated are likely to perform better in high-pressure and crisis situations. Unlike extrinsically motivated leaders, who are driven by external rewards (for example, promotions or financial incentives), intrinsically motivated leaders possess an internal sense of purpose and resilience that allows them to adapt to challenges with greater flexibility and innovation. This shift is essential in a world that demands leadership capable of balancing profitability with creativity, sustainability, and ethical practices.

2.3.7 The Talent Mindset: Shifting from Fixed to Growth

The concept of a "growth mindset" (Dweck, 2017) has gained prominence in leadership discourse, particularly in organizations with a focus on talent development. The main surmise is that a growth mindset leader believes in human development and constantly seeks improvement, learning from their team and acknowledging others' contributions. In contrast, a "fixed mindset" can impede growth, particularly when leaders fail to recognize their own limitations and resist efforts to improve. The attributes of a growth mindset could provide the fodder for behaviours that need to be replicated across professional development models in the corporate world.

However, as organizations transition into more digital and hybrid models, the question arises: how does a growth mindset manifest in a world increasingly influenced by AI and automation? Leaders must adapt to this new context, integrating their belief in human potential while leveraging technological advancements. The growth mindset must evolve to accommodate this technological integration, ensuring that human development remains at the core of leadership practices, even as the work environment becomes more digitalized.

2.3.8 The Versatilist CEO: A New Leadership Archetype

The future of leadership demands a more versatile and multidimensional CEO—one who is not merely a generalist but a "versatilist." As organizations evolve, leaders must possess a broad understanding of diverse fields, including IT, AI, finance, talent management, and innovation. The role of the CEO will increasingly involve a synthesis of various disciplines, as leaders must navigate complex business environments, technological advancements, and evolving workforce dynamics. CEOs will need to champion innovation while maintaining a balance between operational efficiency and ethical leadership, particularly in a world where both technological and social changes

are accelerating. Interesting new qualities are making their way into the lexicon of the CEO archetype who until recently carried the weight of achieving company profit goals in the best way they knew. But the world is opening up to the concept of "soft skills" like never before. As an example, Summer (2019) introduces compassion as a skill that influences pro-social behaviour, and alleviates stress.

2.3.9 Neuroscience and the Evolution of Leadership Styles

Neuroscience offers valuable insights into how leaders can adapt and evolve their leadership styles. The concept of coherence—the alignment of different regions of the brain—plays a crucial role in leadership effectiveness. Research indicates that coherence between the left and right hemispheres of the brain can impact decision-making, emotional regulation, and visionary thinking (Cacioppo *et al*., 2008). Leaders who cultivate coherence in their brain function are more likely to demonstrate emotional balance, empathy, and clarity in their actions.

Incorporating neuroleadership principles into leadership models can provide a deeper understanding of how leaders make decisions and manage their teams. Emotions, which are often dismissed in traditional leadership models, have been shown to significantly impact leadership effectiveness. As emotional learning influences decision-making, leaders must be attuned to their emotions and the emotions of others to create a positive and productive work environment (Yousaf & Rehman, 2017).

2.3.10 Workforce Dynamics Post-2020: The Leadership Challenge

As noted by David Courtwright (2019), the modern workforce is increasingly influenced by emotional and psychological factors, including dopamine-driven behaviors and addictive consumption patterns. These factors contribute to an unpredictable and

often challenging work environment, with higher rates of mental health issues such as depression (Liu *et al*., 2019). Leaders in the post-pandemic era must be equipped to manage these complexities by fostering psychological safety, emotional resilience, and effective stress management within their teams. Stress and well-being, the panacea and cure have opened up a pandora's box confounding issues, never discussed prior to 2018 with such seriousness. The subject could bridge the gap between academia and practice to a huge extent. It could involve measuring different hormones and body parameters. One such is studying cortisol elevations is a causal factor for memory and learning being affected by stress (Abercrombie *et al.*, 2003)

The future of leadership is deeply connected to the ability to navigate these psychological challenges while maintaining high levels of motivation and engagement among employees. The workforce of tomorrow will require leaders who are not only skilled in traditional management practices but also capable of providing emotional support and fostering a healthy organizational culture in an increasingly digital and disconnected world.

2.4 Summary: Evolving Leadership Models for a Complex Future

The first section of the literature review critically examines the intersections between neuroscience, leadership development, and the impact of AI. By exploring the concepts of neuroplasticity, brain reorganization, and the role of consciousness, this review aims to highlight the importance of integrating neuroscience into leadership training. As the world continues to change at an unprecedented pace, understanding how the brain can be "rewired" for effective leadership will be essential for fostering leaders who are capable of navigating the challenges of the future.

Through section two, the stage is set for looking at things anew keeping in mind recent years and the unravelling of neuroscience as applied to behavioral psychology and epigenetics and cognitive science. This section integrates key insights from the research on willpower, neurobiology, the growth mindset, and the evolving leadership landscape in the post-pandemic world. It ties together existing theories and emerging ideas while framing the need for new leadership models that balance traditional competencies with adaptability and emotional intelligence.

The Literature review will delve deeper into the methodologies and frameworks that can be used to cultivate these leadership competencies and explore the practical implications for organizational success in the coming decades.

In summation, the need for a new leadership paradigm is clear. Leadership in the future must be dynamic, emotionally intelligent, adaptable, and capable of integrating diverse disciplines, from AI to neuroscience. It must also evolve to meet the psychological and emotional needs of a workforce that is increasingly complex and influenced by external challenges such as pandemics, economic instability, and technological advancements.

By focusing on continuous personal development, neuroplasticity, and a growth mindset, leaders can build the resilience, creativity, and empathy needed to guide organizations through the complexities of the modern world. As the landscape of leadership continues to shift, it will require a balance between traditional management skills and innovative approaches that leverage new technologies and insights from neuroscience, psychology, and organizational theory.

CHAPTER III

METHODOLOGY

3.1 Overview of the Research Problem

The rapid and widespread shift to virtual workspaces, accelerated by global disruptions such as the COVID-19 pandemic, has fundamentally altered how teams interact, communicate, and perform. While virtual collaboration offers flexibility and access to a global talent pool, it also presents unique challenges related to team dynamics, particularly concerning trust, psychological safety, and emotional intelligence.

Traditional leadership models often fall short in addressing these nuanced dynamics in remote settings, creating a pressing need for innovative frameworks like neuroleadership that can better align with the cognitive and emotional realities of virtual teams.

Neuroleadership, which integrates neuroscience with leadership practices, offers a promising lens to understand and influence behavior in remote work environments. Ringleb and Rock (2008) postulated this could be done by addressing the underlying neurological processes that govern trust, motivation, decision-making, and emotional regulation (Smith *et al*., 2012).

However, despite its growing prominence, empirical research exploring the effectiveness and mechanisms of neuroleadership within virtual teams remains sparse. There is limited understanding of how neuroleadership practices can cultivate psychological safety and trust, which are critical for team cohesion, innovation, and

performance in geographically dispersed work environments (Edmondson, 1999; Tan *et al*., 2021).

Additionally, the emotional cues and interpersonal feedback that are readily available in face-to-face environments are often diminished or distorted in virtual settings. This placed a greater burden on leaders to demonstrate emotional intelligence, defined by Goleman (1998) in nuanced and adaptive ways (Boyatzis *et al*., 2017). Remote leaders are required not only to manage tasks but also to foster an emotionally attuned, psychologically safe culture that supports open communication and resilience—an area where Rock's (2009) neuroleadership might offer actionable insights through its focus on the brain's social needs and emotional drivers.

3.2 Operationalization of Theoretical Constructs

The theoretical foundation of this study was anchored in the integration of Neuroleadership theory, Social Cognitive Theory, Psychological Safety Theory, and Emotional Intelligence (EI) theory to explore the leadership dynamics that influence trust, psychological safety, and emotional regulation within virtual workspaces.

The theoretical framework of this study proposed that Neuroleadership behaviours (based on SCARF dimensions and neuroscience-informed practices) influence the development of: trust in virtual team members, psychological safety within the team and emotional intelligence competencies in leaders. Neuroleadership refers to the application of neuroscience principles to leadership practices, aiming to improve decision-making, emotional regulation, and team dynamics. It is demonstrated using the SCARF model (Rock, 2008).

- **Integrative Model:** The theoretical framework of this study proposed that:

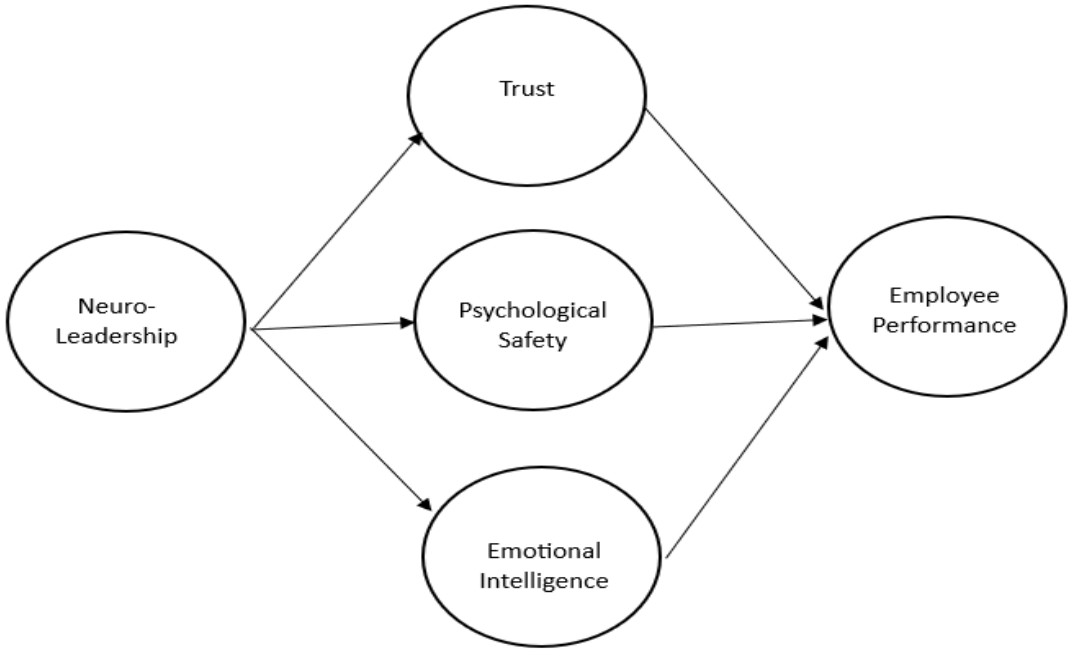
Neuroleadership behaviors (based on SCARF dimensions and neuroscience-informed practices) influence the development of:

a) Trust in virtual team members
b) Psychological safety within the team
c) Emotional intelligence competencies in leaders

These three constructs—*trust, psychological safety, and emotional intelligence*—will serve as mediators or moderators that affect overall team performance, cohesion, and satisfaction in virtual environments.

The framework recognized the interdependent nature of these constructs: Trust fosters psychological safety; emotional intelligence reinforces trust; and psychological safety enhances team learning and adaptability—all underpinned by neuroleadership principles.

Figure 3.1 – Theoretical Framework



Key Constructs and Variables

1. Neuroleadership (Exogenous Construct)

Neuroleadership refers to the application of neuroscience principles to leadership practices, aiming to improve decision-making, emotional regulation, and team dynamics.

Framework: SCARF model (Rock, 2008).

Dimensions (Variables):

a) **Status** – perception of one's importance relative to others.

b) **Certainty** – ability to predict the future.

c) **Autonomy** – sense of control over events.

d) **Relatedness** – feeling of connection and belonging.

e) **Fairness** – perception of fair exchanges and treatment.

2. Trust (Mediating Constructs)

Trust refers to the belief that team members and leaders will act in reliable, competent, and ethical ways in a remote working context.

Dimensions (Variables):

a) **Cognitive trust** – based on reliability and competence.

b) **Affective trust** – based on emotional bonds and care.

c) **Psychological Safety** (Mediating Construct)- Psychological safety is the shared belief among team members that the team is safe for interpersonal risk-taking.

d) **Dimensions** (Variables)- Openness to speak up

- Non-punitive response to mistakes
- Interpersonal risk tolerance

e) **Emotional Intelligence (EI)** ***(****Mediating Construct):* Emotional Intelligence is the ability to recognize, understand, manage, and influence emotions in oneself and others.

Framework: Based on Goleman's model (1995, 1998).

Dimensions (Sub-Variables):

- Self-awareness
- Self-regulation
- Motivation
- Empathy
- Social skills

5. Employee Performance *(Endogenous Construct)*

This represents how well virtual teams achieve their goals, maintain collaboration, and sustain satisfaction.

Potential Indicators (Outcome Variables):

- Task performance
- Team cohesion
- Job satisfaction
- Communication quality
- Engagement

Further, these three constructs that are part of the scope of our research being primary factors when measuring SCARF —trust, psychological safety, and emotional intelligence—serve as mediators or moderators that affect overall team performance, cohesion, and satisfaction in virtual environments. The proposed framework sought to confirm the interdependent nature of these constructs: Trust fosters psychological safety; emotional intelligence reinforces trust; and psychological safety enhances team learning and adaptability—all underpinned by neuroleadership principles. Potential outcome variables expected could include task performance, team cohesion, and quality of communication and employee engagement.

The research plan was to use Neuroleadership as an exogenous construct and Employee performance as an endogenous construct. Trust, Emotional Intelligence and Psychological safety made up the three mediating constructs towards our proposed theoretical framework.

In summary, the research objective sought to examine the inter-relationships and causality of the mediators and pull the two constructs in an established relationship that could be used to further the development of leadership practice research and make it more user-friendly. A mediation analysis and Interplay between variables may give us

insights to create inputs towards a new model or validate the use of neuroleadership more purposefully.

3.3 Research Purpose and Questions

While the constructs of trust, psychological safety, and emotional intelligence have individually been studied in remote team contexts, few studies have examined how these elements interact within a neuroleadership framework to influence team effectiveness and well-being. This gap is particularly noticeable given the increasing prevalence of hybrid and fully remote work models, which demand new forms of leadership noted Sutherland & Jarrahi (2018) and that are both brain-friendly and digitally competent (Liu *et al*., 2022).

There seemed to be a critical need to explore how neuroleadership principles could be operationalized in virtual workspaces to enhance trust, promote psychological safety, and leverage emotional intelligence, ultimately leading to more cohesive and productive remote teams. Addressing this gap would not only contribute to theoretical development in the emerging field of neuroleadership but also offer practical strategies for organizations seeking to navigate the complexities of managing virtual teams in an increasingly digital world.

This thesis aimed to focus on establishing the relationships and linkages between the three mediators and their variables, around a construct of neuroleadership and employee performance in remote or virtual teams. The aim was to establish a firm theoretical framework that can then be adapted to a practical model and design for leadership and employee development for the future. Understanding the brain and its

motives as expressed in human behavioural form seems to be at the root of all future development of human potential in a world where machines are learning fast and there are attempts on, to bridge the existing gaps between humans and machines (Fenwick et al*.,* 2023).

As such, the research is not limited to, but seeks to answer the following questions: What are the causal relationships between the variables and mediators in the construct? To what extent does psychological safety mediate the relationship between Neuroleadership and Employee Performance? How do Trust and Emotional Intelligence interact to influence the relationship between Neuroleadership and Employee Performance with Psychological safety as a mediator? This study which by no means was ambitious or audacious sought to understand the influence of Neuroleadership practices on employee performance in virtual workplaces mediated by psychological safety, trust and emotional intelligence.

3.4 Research Design

The study planned to use a quantitative, cross-sectional research design to investigate the impact of neuroleadership on remote team effectiveness. It worked with emotional intelligence, trust, and psychological safety as mediating variables. The research design was structured to collect, analysis, and interpret numerical data to test hypothesized relationships among the key constructs.

The proposed sampling design targeted a minimum of 400 respondents who were remote or hybrid employees and team leaders working in organizations across various industries (for example, IT, services, consulting) that actively operate virtual teams. Purposive sampling was used to target individuals with remote work experience and

familiarity with digital collaboration tools. It was assumed that a sample size of minimum 400 respondents (calculated using a sample size calculator for an unknown population size) would ensure robust statistical analysis, especially for mediation testing.

The data collection was done using a structured questionnaire that incorporated standardized and validated measurement scales for each construct. Initial approach discussions showed that the measuring scale most workable would be a 5-point Likert scale. Since the survey was collected using google form and the target audience were all corporate employees; management and participants were informed about the purpose of the study, assured of confidentiality, and participation was voluntary. No identifying information was collected for ethical purposes.

For data analysis, the proposed methods included descriptive statistics (means, SD, frequencies). To examine the inter-relationships between variables in the theoretical model PLS-SEM analysis using SMART PLS software was used.

This study adopted a quantitative, cross-sectional research design to investigate the impact of neuroleadership on remote team effectiveness, with emotional intelligence, trust, and psychological safety as mediating variables. The research design was structured to collect, analyze, and interpret numerical data to test hypothesized relationships among the key constructs.

Here is a summary of the proposed approach designed before data collection.

1. Research Approach

- **Approach**: Quantitative
- **Purpose**: Explanatory

- The study aimed to explain the relationships between neuroleadership behaviors and remote team outcomes by identifying the mediating roles of emotional intelligence, trust, and psychological safety.

2. Sampling Design

- **Population**: Remote or hybrid employees and team leaders working in organizations across various industries (e.g., IT, services, consulting) that actively operate virtual teams.
- **Sampling Technique**: **Purposive sampling** will be used to target individuals with remote work experience and familiarity with digital collaboration tools.
- **Sample Size**: A minimum of **400 respondents** will be targeted to ensure robust statistical analysis, especially for mediation testing.

3. Data Collection Method

- **Instrument**: A structured questionnaire will be developed, incorporating standardized and validated measurement scales for each construct.
- **Measurement Scale**: All items will be rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

4. Data Analysis Techniques

- **Software**: SPSS / SmartPLS
- **Techniques**:
- **Descriptive statistics** (means, SD, frequencies)
- PLS-SEM analysis using SMART PLS software.

5. Ethical Considerations

- Participants were informed about the purpose of the study, assured of confidentiality, and participation was voluntary.
- No identifying information was collected.
- Ethical clearance from the concerned Institutional Review Board (IRB) was not required given that no personal data was collected.

3.5 Population and Sample

This demographic profile provided a strong foundation for examining the dynamics of neuroleadership in virtual workspaces, especially within a predominantly young, IT-driven workforce with relatively recent exposure to remote work environments. As a study at the cross section of social science and neuroscience, it looked at individual analysis to derive perceptions and behaviours framed in a theoretical framework or model. To have meaningful data that could operationalize these constructs, perceptions and behaviours it was decided to use purposive sampling and the choice of instrumentation was a survey questionnaire to measure all of the above. The unit of analysis and selecting a targeted population to sample are critical steps (Casteel and Bridier, 2021).

3.6 Participant Selection

The participant selection was done with the intention of purposive sampling. The study was focused on gathering specific knowledge and experiences related to industries and organisations that were corporations where remote work was practiced or encouraged. This was in line with the specific objectives of this study which was

exploratory and focused on quantitiative methods. A largish sample population was also used over 1000 survey notes sent and 631 respondents. The participant cover note that accompanied the survey clearly spelt out the voluntary and independent nature of the respondents and needed to respond only if willing. It was also clarified that the participants who received the survey were random in their profile of location, rank and age. The industries were the only selection bias of the researchers to source rich data on virtual or remote workplaces.

3.7 Instrumentation

This study used Survey Questionairres as the main instrument for primary data. The survey was designed to draw focus on the main construct as well as all the mediators in a transparent manner. Questions were posed section wise so quantitiative analysis woud give data for each mediator in relation to both the exogenous and endogenous construct. To standardise the data for consistency and keep it bias free, it was tested using indicator loading values. All questions below the standard value were removed and not used for analysis to keep the results as reliable as possible.

The questionairre was carefully constructed to be free of any personal data collection that might involve ethical integrity. It also had multiple choice options on a 5 point Likert scale. Interviews and Focus groups and other instruments of data collection were disqualified given that our research objective was to draw competency and behavioural input for a cohesive workforce , and in a non-threatening way get them to be vulnerable.

For data analysis, descriptive statistics and a software tool were used. These were selected to verify reliability and consistency of the sample as well as the models for future use.

3.8 Data Collection Procedures

The data collection procedure involved getting first hand responses in the form of primary data that could then be subjected to a more quantitative analysis. This tied in with the exploratory nature of the research undertaken and the objective of understanding the impact of neuroleadership on employee performance mediated by trust, psychological safety and emotional intelligence. All these are not directly measurable, but are felt by employees in a work setting based on their experiences with their immediate manager and other stakeholders. A survey designed to be objective with a 5-point Likert scale and no personal information was sent out to collect data. This was done directly by the researcher as well as through organisational leadership putting out an email or getting their human resource manager to do the same. The intention was to keep it light while still gathering insights that could be reliable and represent a valid sample.

The survey questionnaire was intended to reach out to a significant and largish population. Participants were fully informed and took the survey on a voluntary basis, with an open invitation to ask for research findings once published. It was always intended to test validity of the survey questionnaire using indicator loadings and only valid responses were put into the SSPS software intended for analysis, which would provide the reliability as well as relationability of the different variables making the construct robust enough to test other mediators in the future.

3.9 Research Design Limitations

Despite the methodological rigor and robust sample size, this study is not without its limitations. These limitations, while not diminishing the value of the findings, provide essential context for interpreting the results and identifying directions for future research.

1. **Cross-Sectional Design:** The use of a cross-sectional research design limits the ability to infer causality between neuroleadership behaviors and team performance outcomes. Although statistical methods like PLS-SEM allow for testing complex relationships, the findings reflect associations at a single point in time rather than longitudinal effects. Future studies could adopt a longitudinal approach to examine how these dynamics evolve over time in remote teams.
2. **Purposive Sampling and Generalizability:** While purposive sampling was appropriate for targeting respondents with virtual work experience, it introduces potential selection bias. The findings may not be fully generalizable to all remote or hybrid teams, especially those in different cultural, organizational, or geographic contexts beyond the sample's dominant Indian corporate demographic.
3. **Self-Reported Data:** The data collected relied exclusively on self-reported responses, which are susceptible to biases such as social desirability, common method variance, and perceptual inaccuracies. Although anonymity and confidentiality were assured, and validated scales were used, the subjective nature of survey data can affect reliability.
4. **Measurement Model Constraints:** While validated scales were employed for key constructs like emotional intelligence, trust, psychological safety, and neuroleadership, the adaptation of these instruments to virtual work contexts may

not capture all nuances. Cultural or organizational variations in interpreting survey items could affect the construct validity.

5. **Limited Representation of Senior Leadership:** The sample was skewed toward executive-level employees (69%), with comparatively fewer managerial respondents. As a result, the perspectives of top leadership—whose neuroleadership practices may significantly differ—may be underrepresented in the analysis**.**

6. Industry Concentration: A significant portion of the sample (56%) came from the Information Technology (IT) sector. While this aligns with the prevalence of remote work in IT, it may limit the applicability of findings to other sectors where team dynamics, communication norms, or leadership expectations differ**.**

7. Scope of Mediators: While the study focused on emotional intelligence, trust, and psychological safety as mediators, other potentially influential variables—such as communication technology proficiency, organizational culture, and leadership style—were not included, which may leave out important contextual factors.

In conclusion, although the research employed a sound theoretical framework and robust analytical methods, these limitations suggest the need for further studies using mixed methods, diverse sampling, and longitudinal designs to deepen the understanding of neuroleadership in virtual environments.

3.9 Conclusion

This chapter presented the detailed research methodology employed to investigate the influence of neuroleadership practices on employee performance in virtual workplaces, mediated by trust, psychological safety, and emotional intelligence. Beginning with an overview of the research problem, it highlighted the growing

importance of understanding team dynamics and leadership in digitally distributed work environments, particularly in the aftermath of widespread remote work adoption.

The operationalization of theoretical constructs was grounded in an integrative framework combining Neuroleadership (via the SCARF model), Social Cognitive Theory, Emotional Intelligence, and Psychological Safety Theory. This framework informed the development of specific variables and their proposed relationships, setting a strong foundation for empirical analysis.

A quantitative, cross-sectional design was adopted, utilizing purposive sampling to target individuals with relevant remote work experience. The use of a structured questionnaire and validated scales ensured the reliability and validity of data collection, while the sample size (N = 636) provided robustness for statistical analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Through careful measurement modeling, the study demonstrated adequate levels of indicator reliability, internal consistency, convergent validity, and discriminant validity. These outcomes confirm that the constructs were effectively captured and that the model is statistically sound for further hypothesis testing and interpretation in subsequent chapters.

This methodology not only provides a rigorous approach to addressing the research objectives but also contributes to the emerging discourse on neuroleadership by offering a replicable framework for future studies in remote leadership and team performance. The next chapter will delve into the results derived from the structural model assessment, further exploring the causal pathways among the constructs within the proposed theoretical framework.

CHAPTER IV

RESULTS

4.1 Introduction

This section presents the results of the empirical investigation conducted to examine the influence of neuroleadership practices on employee performance in virtual workspaces, mediated by trust, psychological safety, and emotional intelligence. Data were collected from a sample of 636 remote and hybrid team members and leaders across diverse industries. The large sample size enhances the statistical robustness and generalizability of the findings.

Descriptive statistics were computed to summarize the demographic and response characteristics. The measurement model was assessed to evaluate the reliability and validity of the constructs using indicators such as composite reliability, average variance extracted (AVE), and factor loadings. Following this, the structural model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the hypothesized relationships among the variables and the mediating effects.

The results are structured into three key segments:

(i) assessment of the measurement model

(ii) evaluation of the structural model

(iii) Interpretation of total effects and mediation analysis. This comprehensive approach ensures both construct validity and analytical rigor in evaluating the proposed conceptual framework.

4.2 Research Data Analysis

4.2.1 Demographics

The demographic profile of the respondents (N = 636) reflected a diverse sample of individuals working in virtual or hybrid environments across major Indian cities and industries (Table 4.1.1). The majority of participants were from Delhi (31%), followed closely by Hyderabad (30%). Respondents from Bangalore constitute 20%, while those from Chennai and Mumbai accounted for 10% and 9% respectively. In terms of gender distribution, 58% of the respondents were male, and 42% were female.

The age composition indicated that nearly half of the respondents (49%) were under the age of 25, suggesting a young workforce engaged in virtual work settings. Respondents aged between 25 to 40 years made up 23%, while those between 40 to 50 years represented 18%. Individuals above 50 years of age account for the remaining 10%. With respect to organizational roles, a significant proportion (69%) of the respondents hold executive-level positions, whereas 31% occupy managerial roles.

Regarding virtual work experience, a dominant 89% of the participants reported having three years or less experience in virtual settings, reflecting the recent and rapid shift to remote work arrangements in the wake of digital transformation and pandemic-related disruptions. Only 11% had more than three years of virtual work experience. Industry-wise, the Information Technology (IT) sector leads with 56% of the total respondents, followed by Financial Services (20%), Digital Marketing (10%), Educational Technology (9%), and other sectors (5%).

The demographic profile provided a strong foundation for examining the dynamics of neuroleadership in virtual workspaces, especially within a predominantly

young, IT-driven workforce with relatively recent exposure to remote work environments.

Table 4.2.1 Demographic Profile of Respondents

Place		Gender		Age		Role		Virtual Work Experience		Industry	
Delhi	197 (31)	**Male**	369 (58)	**Less than 25 years**	312 (49)	**Executive Role**	439 (69)	**Less than or equal to 3 Years**	566 (89)	**Information Technology**	356 (56)
Hyderabad	191 (30)	**Female**	267 (42)	**25-40 years**	146 (23)	**Managerial Role**	197 (31)	**Greater than 3 Years**	70 (11)	**Financial Services**	127 (20)
Bangalore	127 (20)			**40-50 years**	114 (18)					**Digital Marketing**	64 (10)
Chennai	64 (10)			**Above 50 years**	64 (10)					**Educational Technology**	57 (9)
Mumbai	57 (9)									**Other**	32 (5)
Total	**636 (100)**	**Total**	**636 (100)**	**Total**	**636 (100)**	**Total**	**636 (100)**	**Total**	**636 (100)**	**Total**	**636 (100)**

Source: *Primary Data*

Note: *The figures in parentheses are percentage to the total*

4.2.2 Assessment of the Measurement Model

The instrumentation for the measurement model is the SPSS Software which determined the PLS-SEM results used for this exploratory study with a complex structural model where the research objective was to test the theoritical framework from a predictive perspective.

To assess the measurement models, Hair et. al (2019) guideliness on how to report PLS-SEM results has been followed. In this study, the indivdiual indicator variables are reflective in nature and the assessment of reflective measurement models comprises of measuring the internal reliabiltiy, internal consistency, convergent validity and discriminant validity.

Internal reliability is ensured by looking into the indicator loadings, which are shown in Table 4.2.2.

Table 4.2.2 Indicator Loadings

Construct	Indicator	Loadings
Emotional Intelligence	EI03	0.762
	EI04	0.749
	EI09	0.750
	EI10	0.753
	EI13	0.767
	EI14	0.764
Employee Performance	EP01	0.752
	EP02	0.788

	EP03	0.782
	EP04	0.833
	EP05	0.827
	EP06	0.872
	EP07	0.859
	EP08	0.870
Neuro Leadership	NL01	0.914
	NL02	0.856
	NL07	0.922
	NL08	0.925
	NL09	0.724
Psychological Safety	PS01	0.776
	PS02	0.784
	PS03	0.763
	PS04	0.776
	PS05	0.738
	PS06	0.743
	PS07	0.705
	PS08	0.737
	PS09	0.767
Trust	T01	0.899

	T02	0.859
	T03	0.893
	T04	0.896
	T05	0.874

Source: *Primary Data*

Note: *PLS-SEM analysis is done using SMART PLS software*

Indicator loadings explain the amount of variance shared between the individual variables and the construct associated with them. Indicator loadings ensures the indicator reliability of reflective measurement models. It can be seen in Table 4.2.1, that we have kept only those indicators which have loading of more than the recommended critical value of 0.708 (Hair et. al, 2019). Indicators which having loadings less than 0.708 were removed from the model. The critical value of 0.708 indicate that the associated construct explains more than 50% of the related indicator's variance and thus provide adequate item reliability. Thus, we can say that our model has satisfactory indicator reliabilitiy.

After ensuring indicator reliability, the next step is to assess internal consistency and convergent validity. The composite reliabiltiy and ρA is used to assess the internal consistency of reflective constructs, and AVE (Average Variance Extracted) is used to assess the covergent validity of reflective constructs. Compositie reliabilty, ρA and AVE of our assessment model is shown in Table 4.2.3.

It can be seen from Table 4.2.3, that both the composite reliabilty and ρA lies in between the recommended thresholds of 0.70 and 0.95. and all the AVE values exceed the recommended critical value of 0.5. Thus, we can say that our reflective assessment model has satisfactory level of internal consistence as well as covergent validity.

Table 4.2.3 Reliability and Validity

Constructs	ρA	Composite Reliability	Average Variance Extracted
Emotional Intelligence	0.898	0.899	0.560
Employee Performance	0.934	0.943	0.626
Neuro Leadership	0.927	0.884	0.522
Psychological Safety	0.911	0.922	0.569
Trust	0.921	0.938	0.719

Source: *Primary Data*
Note: *PLS-SEM analysis is done using SMART PLS software*

The final step in the assessment of reflective measurement model is to ensure discriminant validity, which explains the extent to which each construct is empirically separate from other construct. HTMT (Hetrotrait-monotrait) ratio is used to assess the discriminant validity of the model. The HTMT values are shown in Table 4.2.3.

HTMT is the mean correlation value of items across constructs in relation to the geometric mean of average correlations for item measuring the same construct. When HTMT values are high, discriminant validity is said to be low. It can be seen from Table 4.2.3., that all the HTMT values of our reflective measurement model are significantly lower than the conservative threshold limit of 0.85. Thus, it can said that discriminant validity of our model is satisfactorily established.

4.2.3 Assessment of the Structural Model

To assess the structural model, the guidelines of Hair et. al (2019) has been followed. According to Hair et. al (2019), assessment of the structural model involves three important things viz., checking the collinearity issues, checking the relevance and significance of path coefficients and checking the models' explanatory and predictive power. The results of our structural model were shown in Table 4.2.4 & Table 4.2.5 and the significance of the path coefficients with relevant hypothesis has been separately shown in Figure 4.2.1.

Table 4.2.4 presents the R-square values for the endogenous constructs in the structural model, indicating the proportion of variance explained by the exogenous variables. The R-square value for Employee Performance is 0.694, suggesting that approximately 69.4% of the variance in employee performance can be explained by the combined influence of neuroleadership, trust, psychological safety, and emotional intelligence. This indicates a substantial level of predictive accuracy for the model in relation to team outcomes in virtual settings.

The construct of Emotional Intelligence has an R-square value of 0.646, implying that 64.6% of its variance is explained by neuroleadership practices. This demonstrates a strong effect of neuroleadership in enhancing emotional competencies among virtual team members. In contrast, Psychological Safety shows a moderate R-square value of 0.287, indicating that 28.7% of the variance is accounted for by the predictors in the model. This reflects a partial but meaningful influence of neuroleadership and associated constructs on creating a safe environment for interpersonal risk-taking.

The construct of Trust records the lowest R-square value at 0.151, revealing that only 15.1% of the variance is explained by the independent variables. This suggests that

while neuroleadership contributes to trust-building in remote teams, other external factors not included in the model may also play a significant role.

Table 4.2.4 R-Square Value

Construct	R-square
Emotional Intelligence	0.646
Psychological Safety	0.287
Trust	0.151
Employee Performance	0.694

Source: *Primary Data*

Note: *PLS-SEM analysis is done using SMART PLS software*

The structural model results provide insights into the direct relationships among the latent constructs, along with their effect sizes and multicollinearity diagnostics (Table 4.2.5). All hypothesized paths in the model were found to be statistically significant at $p < 0.001$, demonstrating strong support for the proposed relationships.

The path from Neuroleadership to Emotional Intelligence shows the highest standardized coefficient ($\beta = 0.804$, $t = 79.986$, $p = 0.000$), indicating a very strong and highly significant impact of neuroleadership practices on the emotional intelligence of virtual team members. The corresponding f^2 value of 1.829 further confirms a large effect size, and the VIF value of 1.000 suggests no multicollinearity issues.

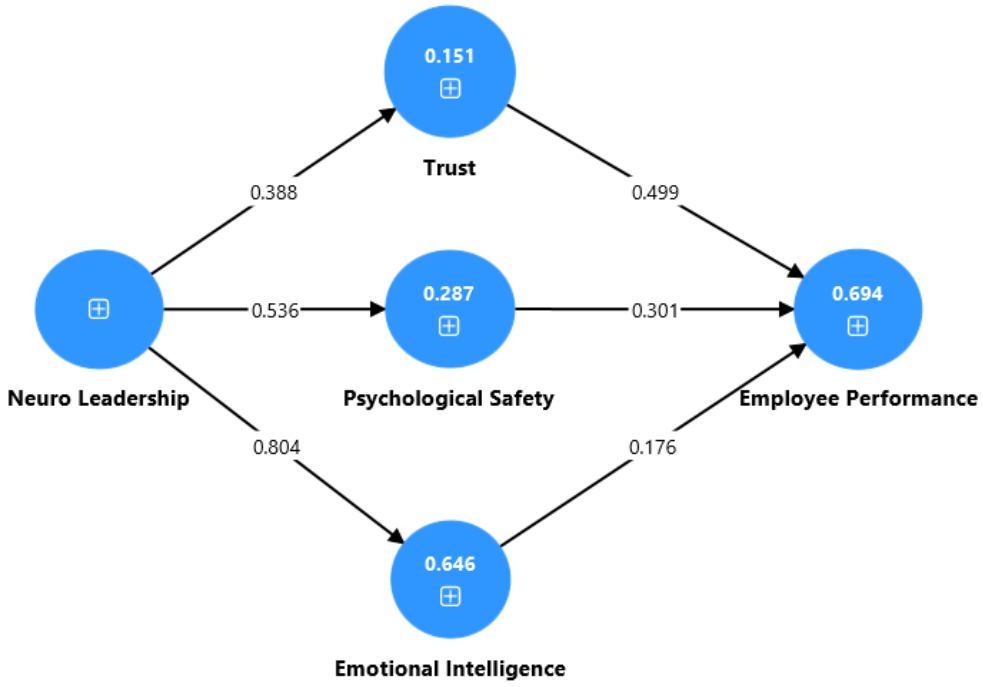
Neuroleadership also significantly predicts Psychological Safety ($\beta = 0.536$, $t = 16.252$, $p = 0.000$) and Trust ($\beta = 0.388$, $t = 9.732$, $p = 0.000$), with moderate effect sizes ($f^2 = 0.402$ and 0.178, respectively). These findings highlight the importance of

neuroleadership behaviors—such as promoting fairness, autonomy, and relatedness—in fostering a safe and trustworthy environment in remote teams.

In terms of outcome variables, Trust has the strongest direct effect on Employee Performance ($\beta = 0.499$, $t = 13.073$, $p = 0.000$), with a large effect size ($f^2 = 0.494$). This underscores the pivotal role of trust in enhancing performance outcomes in virtual workspaces. Psychological Safety also positively influences Employee Performance ($\beta = 0.301$, $t = 7.161$, $p = 0.000$), contributing a moderate effect ($f^2 = 0.160$).
Finally, Emotional Intelligence shows a statistically significant but relatively lower direct impact on Employee Performance ($\beta = 0.176$, $t = 5.258$, $p = 0.000$), with a small to moderate effect size ($f^2 = 0.067$). This suggests that while emotionally intelligent leaders contribute to performance, their influence may be more indirect or mediated through other constructs.

All VIF values in the model are below the critical threshold of 3.3, confirming the absence of multicollinearity among predictor variables. Overall, the path analysis affirms that neuroleadership serves as a foundational driver of trust, emotional intelligence, and psychological safety, all of which significantly enhance performance in virtual teams.

Figure 4.2. Structural Model Results



Source: Primary Data
Note: PLS-SEM analysis is done using SMART PLS software

Table 4.2.5: Structural Model Results

Path	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	f-Square	VIF
Emotional Intelligence -> Employee Performance	0.176	0.033	5.258	0.000	0.067	1.518
Neuro Leadership -> Emotional Intelligence	0.804	0.010	79.986	0.000	1.829	1.000

Neuro Leadership -> Psychological Safety	0.536	0.033	16.252	0.000	0.402	1.000
Neuro Leadership -> Trust	0.388	0.040	9.732	0.000	0.178	1.000
Psychological Safety -> Employee Performance	0.301	0.042	7.161	0.000	0.160	1.858
Trust -> Employee Performance	0.499	0.038	13.073	0.000	0.494	1.646

Source: *Primary Data*

Note: *PLS-SEM analysis is done using SMART PLS software*

4.2.4 Mediation Analysis

The significance and strength of the mediating constructs have been assessed using bootstrapping procedure at a 95% confidence interval, and the results are shown in Table 4.2.6.

The mediation analysis was conducted to evaluate the indirect effects of neuroleadership on employee performance through the mediators: emotional intelligence, trust, and psychological safety. All three indirect paths were found to be statistically significant at $p < 0.001$, indicating strong support for the mediating roles of these constructs.

Table 4.2.6: Structural Mediation

Path	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Neuro Leadership -> Emotional Intelligence -> Employee Performance	0.141	0.027	5.289	0.000
Neuro Leadership -> Trust -> Employee Performance	0.194	0.025	7.872	0.000
Neuro Leadership -> Psychological Safety -> Employee Performance	0.161	0.024	6.647	0.000

Source: *Primary Data*

Note: *PLS-SEM analysis is done using SMART PLS software.*

The path from Neuroleadership to Employee Performance via Emotional Intelligence yielded a standardized indirect effect of 0.141 (t = 5.289, p = 0.000), confirming that emotional intelligence significantly mediates the relationship between neuroleadership practices and performance in virtual teams. This suggests that neuroleadership enhances leaders' emotional competencies, which in turn positively influence team outcomes.

The strongest indirect effect was observed through Trust, with a path coefficient of 0.194 (t = 7.872, p = 0.000), indicating that trust serves as a critical psychological mechanism through which neuroleadership fosters improved employee performance. This

highlights the centrality of trust-building behaviors—such as transparency, fairness, and reliability—in remote leadership.

The path via Psychological Safety also shows a significant mediating effect, with a coefficient of 0.161 ($t = 6.647$, $p = 0.000$). This indicates that neuroleadership behaviors contribute to creating a safe interpersonal climate, where employees feel encouraged to speak up, collaborate, and take risks—leading to enhanced team performance.

These findings establish that neuroleadership influences employee performance both directly and indirectly through its positive impact on emotional intelligence, trust, and psychological safety. These mediators represent distinct but interrelated psychological mechanisms that enable effective leadership in virtual work environments.

4.2.5 Predict Relevance of the Model

Table 4.2.7 presents the Q^2predict values along with the Root Mean Square Error (RMSE) and Mean Absolute Error (MAE) for each endogenous construct, which together assess the out-of-sample predictive power of the model. The Q^2predict values were derived using a blindfolding procedure in the PLS-SEM analysis.

The Q^2 predict value for Emotional Intelligence is 0.643, indicating high predictive relevance, as values above 0.35 are considered strong (Hair *et al.*., 2019). This suggests that the model is highly effective in predicting emotional intelligence based on neuroleadership inputs. Corresponding RMSE (0.599) and MAE (0.462) values are also reasonably low, further confirming the accuracy of the model's predictive capability for this construct.

Employee Performance has a Q^2predict value of 0.270, reflecting moderate predictive relevance. The RMSE (0.857) and MAE (0.654) values are slightly higher, indicating greater variability in prediction, yet still acceptable for behavioral research

models. This shows that the model reasonably predicts employee performance through its exogenous and mediating variables.

For Psychological Safety, the Q^2predict value stands at 0.282, also suggesting moderate predictive relevance, supported by RMSE (0.851) and MAE (0.647) values. This implies that while the model is capable of predicting psychological safety to a reasonable extent, improvements could be made by including additional predictors in future models.

The lowest Q^2 predict value is for Trust, at 0.146, which falls under the low predictive relevance category. With higher error values (RMSE = 0.927, MAE = 0.721), this indicates that while trust is significantly influenced by neuroleadership within the model, its prediction is less precise compared to the other constructs—potentially due to external factors not accounted for in the model.

The model demonstrates strong predictive relevance for emotional intelligence, moderate relevance for psychological safety and employee performance, and limited relevance for trust.

These results affirm the model's practical utility, particularly in predicting emotional and performance-related outcomes in virtual workspaces.

Table 4.2.7 Predict Relevance of the Model

Construct	**Q^2 predict**	**RMSE**	**MAE**
Emotional Intelligence	0.643	0.599	0.462
Employee Performance	0.270	0.857	0.654
Psychological Safety	0.282	0.851	0.647

Trust	0.146	0.927	0.721

Source: Primary Data

Note: *PLS-SEM analysis is done using SMART PLS software*

4.2.6 Importance-Performance Map Analysis (IMPA)

Table 4.2.8 presents the results of the Importance–Performance Map Analysis (IPMA), which evaluates each construct's total effect (importance) on the target variable—Employee Performance—and its performance score on a standardized scale (0 to 100). This dual focus helps identify which constructs should be prioritized for managerial and strategic interventions.

Among the constructs, Trust has the highest total effect (0.499) on employee performance, indicating it is the most influential driver in the model. However, its performance score is moderate at 45.358, suggesting that while trust significantly affects performance outcomes, there is room for improvement in building trust within virtual teams. Therefore, enhancing trust-related interventions should be a top priority for organizations.

Neuroleadership follows closely with a total effect of 0.496 and a slightly higher performance score of 46.574. This indicates that neuroleadership behaviors are not only highly impactful but are also moderately well-executed in the current virtual work settings. Still, there is potential to further improve neuroleadership practices to maximize performance outcomes.

Psychological Safety has a total effect of 0.301 and the highest performance score of 47.811 among all constructs. While it contributes meaningfully to performance, the relatively high execution level suggests that psychological safety is being reasonably well-managed, and gains from further improvement may be incremental.

Emotional Intelligence demonstrates the lowest total effect (0.176) and the lowest performance score (44.869), indicating that while its impact on employee performance is less pronounced compared to other constructs, its current level of implementation is also limited. This signals an opportunity for organizations to develop emotional intelligence capabilities in virtual leaders, which could lead to modest but valuable improvements in team effectiveness.

The construct with a total effect of 0.368 and performance of 46.153 appears to be an aggregate or possibly a rounding artifact not directly labelled, and may represent the overall model average. If so, it reinforces that Trust and Neuroleadership lie above the average in terms of importance, guiding strategic focus areas for managerial action.

IPMA findings recommend that Trust and Neuroleadership should be prioritized for development efforts, as they offer the greatest opportunity to enhance virtual team performance. These areas represent the most effective levers for organizational improvement in remote work contexts.

Table 4.2.8: Importance-Performance Map Analysis

Construct	**Total Effect**	**Performance**
Emotional Intelligence	0.176	44.869
Neuro Leadership	***0.496***	***46.574***
Psychological Safety	0.301	*47.811*
Trust	*0.499*	45.358
	0.368	46.153

Source: *Primary Data*

Note: *PLS-SEM analysis is done using SMART PLS software*

4.3 Summary of Findings

The findings of this study provide strong evidence for the established relationship between neuroleadership and employee performance in virtual settings. It also clarifies the inter-relationships between the mediators including psychological safety, trust, and emotional intelligence when validated with the endogenous and exogenous constructs.

The measurement model demonstrated robust reliability, convergent validity, and discriminant validity, with Table 4.2.2 and the HTMT values confirming that all constructs were measured adequately. This provides a solid foundation for interpreting the structural model. The structural analysis revealed that neuroleadership has a very strong positive effect on emotional intelligence and significant positive effects on psychological safety and trust. This is derived from the (reference path from Neuroleadership to EI which shows highest coefficient Beta=0.804). In turn, trust exerted the strongest direct influence on employee performance, followed by psychological safety and then emotional intelligence. This is inferred as trust has strongest effect on direct perf Beta=0.499. The combined predictors accounted for a substantial portion of the variance in performance (Table 4.2.4 presents R square values for the endogenous constructs), reflecting the model's high explanatory power.

Mediation analysis confirmed that neuroleadership's influence on performance operates entirely through these psychological mediators. The Mediation Analysis was conducted to the indirect effects of NL on EP. The path via PS shows a significant mediating effect with a coefficient of 0.161). The largest indirect effect was observed via trust, highlighting that trust-building behaviours (such as transparency and fairness) are

key mechanisms for improving remote team performance. Significant indirect paths through psychological safety and emotional intelligence indicate that neuroleadership also cultivates a safe, supportive climate in which employees collaborate and excel. Specifically, the path via Psychological Safety shows a significant mediating effect with a coefficient of 0.161. Each mediator thus represents a distinct psychological mechanism enabling effective virtual leadership. These findings establish that neuroleadership affects employee performance both directly and indirectly, enabling this construct to be used with different mediators and for more specific results in future theoretical research on leadership and management.

The Predictive relevance analysis showed especially strong predictive accuracy for emotional intelligence and moderate predictive power for employee performance and psychological safety file. With a Q2 predict value for Emotional Intelligence of 0.643, the data endorses high predictive relevance. The importance–performance map highlighted trust and neuroleadership as the most influential drivers of performance. The findings show that among the constructs Trust has the highest total effect on performance at 0.499. Trust's moderate current performance suggests it should be a focus for development, whereas psychological safety is already relatively well-managed. Emotional intelligence showed lower influence and relatively low implementation, indicating an opportunity to further develop leaders' emotional competencies. These findings are corroborated by the data wherein emotional intelligence demonstrates the lowest total effect 0.176 and the lowest total score 0.44.

Notably, the IPMA explicitly highlights trust and neuroleadership as priority levers for enhancing virtual team performance. Further, IPMA findings recommend Trust and Neuroleadership should be prioritized for development. Collectively, these mediators

are “distinct but interrelated mechanisms” through which neuroleadership enables effective virtual leadership. The findings amply demonstrate that Neuroleadership influences Employee Performance both directly and indirectly. Overall, these results suggest that strengthening neuroleadership practices – especially those that build trust and psychological safety – will yield significant gains in virtual team performance.

4.4 Conclusion

The main findings of this study are listed in the context of the research objectives and questions are summarized in the table below followed by special notes on each construct.

Table 4.2.9 Summary of Key Findings from Structural Model and IPMA

No.	Key Finding	Details and Implications
1	High Predictive Power of the Model	The model explains 69.4% of the variance in employee performance, highlighting the strong explanatory influence of neuroleadership, trust, psychological safety, and emotional intelligence. This underscores the model’s robustness in capturing performance dynamics in virtual workspaces.

2	Trust as the Most Influential Predictor	Trust demonstrated the strongest direct impact on employee performance (β = 0.499, f^2 = 0.494) and the highest importance score in the IPMA (Total Effect = 0.499), establishing it as the most critical driver of virtual team effectiveness.
3	Neuroleadership as a Core Enabler	Neuroleadership significantly predicts emotional intelligence (β = 0.804), psychological safety (β = 0.536), and trust (β = 0.388), with a high total effect (0.496) in the IPMA. These findings position neuroleadership as a central antecedent influencing key psychological conditions in virtual settings.
4	Significant Mediation Effects	All three mediating variables significantly channel the impact of neuroleadership on performance. The strongest indirect effect occurred through trust (0.194), followed by psychological safety (0.161) and emotional intelligence (0.141), supporting the model's proposed mediating pathways.
5	High Predictive Relevance for Emotional Intelligence	Emotional intelligence achieved the highest predictive relevance (Q^2 = 0.643), indicating the model's effectiveness in forecasting emotional competencies based on neuroleadership. Employee performance (Q^2 = 0.270) and psychological safety (Q^2 = 0.282) showed moderate relevance, while

		trust (Q^2 = 0.146) showed lower predictive strength.
6	Strategic Improvement Areas Identified via IPMA	Although trust and neuroleadership are the most important predictors of performance, their performance scores remain moderate (45.358 and 46.574, respectively), suggesting critical areas for leadership development and organizational investment. Psychological safety, though already high-performing (47.811), offers limited improvement potential.

a) **EMPLOYEE PERFORMANCE** - Statistically, 69.4% of the variance in employee performance can be explained by the combined influence of neuroleadership, trust, psychological safety, and emotional intelligence. Clearly these four factors together play a significant role in influencing employee performance outcomes. A substantial (moderate to strong) fit of our structural model to data indicated by the R-square value for employee performance indicates substantial predictive relationships and explanatory power. So, to meaningfully impact employee performance, one could work on improving or even changing the current way of operationalizing or measuring these variables.

b) **NEUROLEADERSHIP** – It serves as a foundational driver of trust, emotional intelligence and psychological safety, all of which drive performance in virtual teams. Neuroleadership significantly predicts emotional intelligence (β = 0.804), psychological safety (β = 0.536), and trust

(β = 0.388), with a high total effect (0.496) in the IPMA. This is confirmed by the study finding the absence of multicollinearity among our predictor variables. Neuroleadership practices have a significant impact on the emotional intelligence of virtual team members.

I. **TRUST** – As an outcome variable Trust had the strongest direct effect on Employee Performance. Its large effect size and the **highest importance score** in the IPMA ((β = 0.499, f^2 =0.494) establishes the pivotal role Trust has in enhancing virtual team effectiveness. Trust with its strongest indirect effect acts as a critical psychological mechanism through which Neuroleadership can foster improved employee performance. So, we can safely infer that Trust-building behaviours including transparency, fairness and reliability all contribute to remote and virtual leadership.

II. **PSYCHOLOGICAL SAFETY** – Employee Performance is moderately influenced and positively by Psychological Safety. When looking at indirect effects, it was observed that neuroleadership behaviours contribute to creating a safe interpersonal climate when employees feel comfortable to speak up and take inter-personal risks, as these behaviours in turn lead to better team performance.

III. **EMOTIONAL INTELLIGENCE** –This has a lower direct impact on Employee Performance, though still statistically significant. With a standardised indirect effect (0.141), Emotional Intelligence significantly mediates the relationship between neuroleadership practices and virtual team effectiveness. The findings indicate that Neuroleadership enhances leaders' emotional competence, which in turn positively influences virtual team outcomes.

IV. **OVERALL MODEL** – While the findings suggest the model has practical utility. It does well in the case of predicting emotional intelligence and performance related outcomes in virtual workspaces. It has strong predictive relevance for emotional intelligence, moderate for psychological safety and limited almost weak relevance for trust. The IPMA on the other hand looks at the three drivers in the following way. Trust has the highest total effect (0.499) on employee performance indicating it's the most influential driver in the model. Its moderate performance score (45.358) indicates that more needs to be done in building trust within virtual teams. Enhancing trust related interventions should be a top priority for organisations.

CHAPTER V

DISCUSSION

5.1 Introduction

This chapter will seek to link the various aspects touched upon in this study from identifying the research problem to establishing the research purpose to reviewing literature and creating a proposed research methodology and finally tabulating and analysing the results. Taking an exploratory approach after an expansive literature review of various prevalent leadership models, corporate environments in the last 5-7 years and performance of employees and leaders in virtual set ups that are also being exposed to digitally transforming corporations. In this new-normal business routine, what kind of work most employees do has changed, where they do it has also changed and how and when they do it is also changing. The kind of leadership this workforce requires is also different we surmised and went on to explore one of the only forward-thinking models of leadership that possibly matched machine learning at a base where both are rapidly evolving.

It then dared to create constructs and a theoretical framework taking into account behavioural competencies from a neuropsychology perspective to see if the neuroleadership model would interact with them. Further how these variables would interact if at all with employee performance and finally to measure if neuroleadership behaviours and attributes could indeed influence or intermingle with employee performance to have positive influence. Purposive sampling with a substantive sample population made for a robust base to assess and evaluate. The results when analysed through multiple tools validated the moderate to strong relationships between neuroleadership, psychological safety, emotional intelligence, trust and their influence on

employee performance. In this chapter we discuss these result findings and their impact and what more can be done to make leadership and management practices more evidence-based using research, of course with some limitations.

5.2. Findings of the research study

There was a sharp turn in the road of corporate culture that came with a workforce navigating a post-pandemic world that was also highly transformative in its digital nature. Both "perceived constraints'' created a trend towards establishing virtual workplaces and remote work as norms; in a corporate environment that this far thrived on building culture through physical cues and employee engagement in an office environment. The vulnerability of cultural norms became evident with remote work. (Raghuram, S, 2021).

Neuroleadership as a concept that is represented by the synaptic connection between the social sciences represented by leadership and the natural sciences represented by the Natural sciences (Jose Hejase, 2023) is plausible and appealing. It lends itself credibly to the construct presented in this thesis of leadership as a team sport, managed by our higher self. The neurological basis and understanding of the brain in the processes of decision making, emotional regulation, collaborating with others and facilitating change make Neuroleadership a powerful construct worthy of deeper study.

Our study focused on exploring the relationships and points of intersection of key competencies like trust, psychological safety and emotional intelligence with a view to operationalising of neuroleadership principles in remote work situations to impact employee performance. While the constructs of trust, psychological safety, and emotional intelligence have individually been studied in remote team contexts, few studies have examined how these elements interact within a neuroleadership framework to influence

team effectiveness and well-being. This gap is particularly salient given the increasing prevalence of hybrid and fully remote work models, which demand new forms of leadership that are both brain-friendly and digitally competent (Liu *et al.*., 2022; Sutherland & Jarrahi, 2018). One of the central themes that came out of the literature review in the post-pandemic leadership concept was the need for theoretical advancement in the area of leadership and organisational behaviours. The new eco-system created by hybrid and virtual teams demanded new skillsets of behaviours and competencies that went beyond the established operational efficiency and "soft skills" or professional development available in most evolved corporate workplaces.

5.3 Explore the Problem Statement – How Trust EI & PS Interact Within an Nl Framework to Influence Remote Teams

5.3.1 PSYCHOLOGICAL SAFETY

Psychological safety is the absence of interpersonal fear. Feeling psychologically safe allows people to perform their best, directly linked to their ability to learn to feel safe, but indirectly related to making their team effective just by creating psychological safety (Edmondson, 1999). Psychological safety is not a given and it is not the norm in most teams. In fact, a McKinsey Global Survey conducted during the pandemic indicated that the behaviors that create a psychologically safe environment are few and far between in leadership teams and organizations more broadly (McKinsey and co, 2023).

That is worrying, because in a corporate or business environment, psychological safety means feeling safe to take interpersonal risks, to speak up, to disagree openly, to surface concerns without fear of negative repercussions or pressure to sugarcoat bad news. Psychological safety nurtures an environment where people feel encouraged to

share creative ideas without fear of personal judgment or stepping on toes. In this kind of environment, it feels safe to share feedback with others, including negative upward feedback to leaders about where improvements or changes are needed. It's OK to admit mistakes, to be vulnerable, and to speak truth to power. The study further clarified that senior leaders need to be the first adopters of new skills. The results of this thesis belie the fact that while employee's performance is impacted by psychological safety, emotional intelligence and trust, there is further work to be done on who and how to create leadership skills that create a top-down approach to shaping behaviors and organizational culture.

The lack of psychological safety is visible and demonstrated in some research studies already done. The McKinsey report of July 2023 states that seventy-five percent of employers acknowledged in a recent survey the presence of stigma in their workplaces. Mental- health literacy training can help dispel stigma. It even calls out four "qualities" that come in handy in difficult times. None translate into behaviours that could combat employee and leader derailers in tough times or changing environments. Moving to virtual workplaces is a change – it comes with an upside and a downside in terms of productivity. So, it is imperative we dive into behaviours and competencies that could speed up the conditioning of the workforce in these new environments to still stay focused, manage new dynamics and continue to be productive as well as uphold company values and culture. A tall order! That will not be possible without tapping into deeper resources than the basic technical skills and behaviours that helped people land jobs earlier.

There is evidence of the role psychological safety plays in mediating the link between emotions and employees' behavior at workplace. Psychological safety, as

established by Liu *et al*., (2015) mediates the association between employees' voice and their colleagues' moods (Wang, *et al*. 2024).

There is precedence of research studies on psychological safety in primary hierarchical relationships in education and sports that testify to the benefits. Athletes and Sports coaches have strong relationships and experience psychological safety when they can communicate openly. Also, where athletes feel their voice matters to the coach, they feel safe.(Jowett *et al*.., 2023). Pope (2019) identified four key areas of neuroscience research relevant to educational leadership: decision-making, emotion regulation, collaboration, and change facilitation. The heavy dependence on social media, especially with millennials and the Gen Z young adults that are now in the workforce has given rise to new challenges that will have a bearing on competency building as well as impact the work culture of the current employee that makes up a team and organisation. Consider the Social Comparison theory postulated by Festinger, L (1954) where individuals compare themselves to others online, leading to negative self-perceptions and anxiety. Never before has this theory had a chance to come alive as it has now. While the scope of the current study did not allow us to expand our primary research to ask questions on social media consumption and how it impacts psychological safety, trust or emotional intelligence, it would be an interesting project to work on. Also, to study if team effectiveness and productivity is controlled or impacted positively or negatively by the use of social media aids. Openness, as pointed out by De Young and others in 2005 is another trait of educational leaders, that is also linked to the functions of the Prefrontal cortex (Zhang and He, 2024). When the pre-frontal cortex is fully functioning, the body is relaxed and likely to feel safer and make better decisions – implying that the environment is ripe for psychological safety and trust. In the limbic states or primitive

brain is when the body detects more fight or flight responses causing it to stress out and make human emotions and behaviours appear more irrational.

Another study Lee (2022) suggests psychological safety is unrelated to performance independent of the effects of job crafting and thriving at work. But those two reasons should make it an indispensable tool in the workplace where Gen Z employees are all about aligning their work to personal and individual strength, values, purpose and their well-being. This is beyond the conceptual old system of organisational values and goals and skillsets being defined and handed down and even measured in the place of Lee (2022) employment.

5.3.2 EMOTIONAL INTELLIGENCE

At the level of individual neurons, brains are built to detect changes in the environment and send out strong signals to alert us to anything unusual. Error detection signals are generated by a part of the brain called the orbital cortex (it's located right over the eyeballs, or orbits), which is very closely connected to the brain's fear circuitry in a structure called the amygdala. These two areas compete with and direct brain resources away from the prefrontal region, which is known to promote and support higher intellectual functions. This pushes us to act more emotionally and more impulsively: our animal instincts start to take over.

A positive correlation exists between high levels of emotional intelligence and the cultivation of emotional skills, and various outcomes such as enhanced performance, increased job satisfaction, improved interpersonal relationships with team mates, and elevated levels of trust (Koutsioumpa, 2023).

Studies examining the relationship between leadership and emotional intelligence exist, but crossing over and looking for intersections with neuroleadership or any of the elements of its construct were few beyond the level of a doctoral dissertation by Stephanie Beard (Beard, 2021), especially from a view of employee performance. Leadership and even managing people per se can be hard. A study of 800 HR employees found that almost half of them prefer to not follow new directives from a boss (implying low motivation) and almost 2 out of 10 will not follow through at all. A lot of this is to do with communication skills – making Emotional Intelligence key. And creating an environment where psychological safety and trust are present becomes implicit to getting followership.

Employees' emotions are affected to some extent by the daily emotional expression of leaders at they work with, which may in turn have an impact on employees' psychological safety. The Emotion as Social Information model suggests when subordinates unconsciously imitate, or consciously interpret the emotions expressed by leaders, their emotions, cognition, attitudes, behavior, and performance are affected (Wang, Yao and Gao, 2024).

Neuroleadership as a sub-branch of emotional intelligence (Rostomyan and Sukiasyan, 2015) is perhaps oversimplifying the concept. Our study clearly shows that neuroleadership had a strong effect in enhancing emotional intelligence competencies. Other studies have also reinforced the fact that the Neuroleadership construct is a standalone framework which interacts with Emotional intelligence as a mediator for employee performance. In fact, Emotional intelligence is key to the success of Neuroleadership but not in a standalone way.

Another interesting and recent study undertaken for hospital employees in Indonesia that explored the role of neuroleadership as a moderator on the effect of

emotional intelligence and transformational leadership on employee performance. (Retno, Putra Buana Sakti and Author, 2024). The study confirms that influence of emotional intelligence on employee performance can be influenced by other factors, such as personality, situation, and work environment. Therefore, neuro leadership can amplify emotional intelligence's influence on employee performance by helping employees manage pressure and stress, improve their Decision-making abilities, and improve team collaboration and communication. A complex interface with neuroleadership and transformational leadership both thrown into the mix, but interesting from the perspective of our study, because it used a similar structural model and even analysed the data using the same tool.

The study proposes that Transformational leadership and neuroleadership are two interrelated leadership concepts, which could be open to reason, but outside of the purview of this study, but negated in the Literature review.

Transformational leadership focuses on developing relationships between leaders and followers to increase employee motivation, performance, and job satisfaction. Meanwhile, neuroleadership is a leadership approach based on understanding brain function and neuroscience principles to improve individual and organisational performance.

There is a line of thought which separates emotion from motivation (Rostomyan and Sukiasyan, 2015). They present an interesting case of all parts of our self, and that the self we wake up with in the morning is our Neuro-Self. Then we add to it layers of our biological, material, social and spiritual identities. As we begin to dwell into Consciousness, we could postulate that this is a reference to what some call our “higher self”. At an operational level in India there is well accepted recommendations (Dhani and Sharma, 2017) that Information Technology organisations should consolidate EI as a

part of recruitment and selection to employ individuals with high EI as it predicts better job performance, and further as part of training and development to improve the EI of the current employees to additionally enhance their individual performance which would lead to the growth of the organization. The connect between increased EI and employee performance is taken to the next level with our study where neuroleadership can be used in development programs to accelerate EI. While not statistically tested, EI is used by many organisations as part of the talent acquisition strategy, though it is not known how it affects their hiring decisions in the current environment.

5.3.3. Trust as a Mediator

The results of the research study show that while Neuroleadership contributes to building trust in remote teams, it is not exclusive and other factors in the model may also apply. Factors like certainty or status or even relatedness could be linked to trust as an extrapolation though we would need to explore all these as individual variables.

In HBR's Neuroscience of Trust, Paul Zak refers to the presence of oxytocin in rats suggesting that the other animal is safe to approach. The same is extended to humans.(Zak, 2017) . So, chemicals in our body determine how others in the environment who are interacting with us will approach us or maintain distance. But this logical and simplistic natural reflex is completely impeded in a virtual environment. While visual clues across a screen could provide some non-verbal communication, many remote employees do not use cameras or technology constraints prevent or restrict that option making for auditory tones and written text to be the only form of communication, greatly hampering the human brains primitive but highly trained reflex to detect safety and regulate the limbic system or fight.

Adding another dimension to Zak's study is the element of Employee listening and communicating the vision (McCreedy, 2024). At its core, this activity involves carefully communicating the ELT vision for the organization's future and letting employees know they will help shape the road and destination of this visioned future by asking simple start, stop, continue questions. All of these are simple ways to build trust and testify to our study being important in substantiating the moderation of trust using neuroscience practices to impact employee performance.

An interesting complexity to the Trust equation is slowly making its way into AI-led Human Resource management practices. Human-centric AI tools understand and respond to human emotions, enabling natural and empathetic interactions, and respect ethical and social considerations in decision-making processes ((Fenwick, Molnar and Frangos, 2023); Del Giudice *et al.*, 2023). The paper is alarming because it discusses trust in the context of trusting AI, so in a man trusting machine construct, where it could be argued AI is more than a tool. The use of neuroscience principles and constructs will greatly shape how human talent stays ahead of building trust viz-a-viz a machine, though it's too early to state the causes or symptoms of how organisational culture will be impacted by these new practices. Could it possibly dehumanise a workplace and what kind of emotions come into play in that scenario that will impact employee performance is yet unknown.

5.4 Conclusions concerning hypothesis Or Research Objectives

5.4.1 The case for neuroleadership came through in the Literature review of this thesis.

Most of the traditional leadership models appeared to fall short in addressing these nuanced dynamics in remote settings, creating a pressing need for innovative frameworks. For instance, Transformational leadership theory as propounded by Burns suggests that leaders can get followers to change perception or motivation based on moral principles. These could be in the realm of intangibles making moral principles hard to qualify or measure. Neuroleadership with its dance of insights for self-awareness, used mostly in a coaching scenario; and then as it developed, encompassing social domain behaviours around autonomy, certainty, status, fairness and relatedness appeared to better align with the cognitive and emotional realities of virtual teams.

Thus, the conviction that Neuroleadership, which integrates neuroscience with leadership practices, offered a promising lens to understand and influence behavior in remote work environments by addressing the underlying neurological processes that govern trust, motivation, decision-making, and emotional regulation (Ringleb & Rock, 2008; Smith *et al*., 2012).

Neuroleadership as a sub-branch of emotional intelligence (Rostomyan and Sukiasyan, 2015) is perhaps oversimplifying the concept. There is a line of thought which separates emotion from motivation (Rostomyan and Sukiasyan, 2015). They present an interesting case of all parts our Thus, self, and that the self we wake up with in the morning is our Neuro-Self. Then we add to it layers of our biological, material, social and spiritual identities. As we begin to dwell into Consciousness, we could postulate that this

is a reference to what some call our “higher self”. But keeping it real and measurable is important and not enough is known on consciousness to position it in a research hypothesis, so the search was a more plausible explainable element that links up continued.

Studies have shown definite neural connections in the brain that have allowed scientists to develop a deeper understanding of the interconnectedness of the brain and behavior (Massaro, 2017). Neuroleadership focuses on applying neuroscience to leadership development. The brain is the origin of all social interaction and thought. Experts on the human brain claim that social and physical pain are both processed in the same part of the brain. As a result, interpersonal sensitivity is a key quality of transformative leadership. Social and emotional intelligence, communication, empathy, and other transformative leadership skills are addressed by the four components/pillars of neuroleadership. A leader’s or a manager’s social and emotional intelligence affects their capacity for effective leadership. An effective leader might, for instance, build relationships and have an impact on others by being fair and equal to everyone. To manage unfavourable attitudes at work, an institution’s leadership development requires thorough self-reflection and social awareness. To make decisions and lead successfully in the twenty-first century, firms need to have leadership intelligence. (Gkintoni et al., 2022)

While the post pandemic stress required many to focus on ways managers could keep employees happy given the dismal eco-system of survival, the same, Marcus Buckingham, and Curt Coffman (1999) had found at least one pathway that could lead to this lofty goal as early as 1999. They used neuroscience to explain why people are more likely to succeed when managers help them work on their strengths rather than weaknesses. Thus, the interest in the study of neuroleadership is growing. Researchers

can produce better-informed theories and leadership patterns by investigating the neurological basis of behaviour (Ruiz-Rodríguez *et al*. 2023).

The issues that have been most studied in the area of impact of application of neuroleadership in corporate practice are those related to its application in decision-making and conflict resolution. Neuroleadership goes beyond behaviour, beyond what is observed, and aims to discover tools for detecting leaders, improving skills, and detecting factors that are unconsciously affecting behaviour.

5.4.2 The case for NL in virtual environments

Our research problem was verified by the Gintonin fact that despite its growing prominence, empirical research exploring the effectiveness and mechanisms of neuroleadership within virtual teams remains sparse. Our findings indicated a substantial level of predictive accuracy for the model in relation to team outcomes in virtual settings. Infact it can be used a base model for further exploration. The literature reviewed during our research purpose clearly indicated that there is limited understanding of how neuroleadership practices can cultivate psychological safety and trust, which are critical for team cohesion, innovation, and performance in geographically dispersed work environments (Edmondson, 1999; Tan *et al.*, 2021).

Additionally, the emotional cues and interpersonal feedback that are readily available in face-to-face environments are often diminished or distorted in virtual settings, placing a greater burden on leaders to demonstrate emotional intelligence in nuanced and adaptive ways (Goleman, 1998; Boyatzis *et al*., 2017). Remote leaders are required not only to manage tasks but also to foster an emotionally attuned,

psychologically safe culture that supports open communication and resilience—an area where neuroleadership might offer actionable insights through its focus on the brain's social needs and emotional drivers (Rock, 2009).

5.5 Overall Conclusions

What started as a fleeting idea has indeed been proven by sound reasoning. Neuroleadership behaviours are the future of business management and corporations. Academically and in Practice, the Digital world has got us to our knees and forced a good look at human potential from the perspective of the nervous system. Anatomy and physiology which have led medicine and our understanding of health – physical and mental – both of which impact performance will no longer be sufficient. And skill training that focuses on good and bad behaviours will no longer exclusively determine performance or leadership. It will require deeper perspective and a more wholistic approach.

This study and its findings clearly highlight the importance of nurturing leadership practices and workplace environments (more so virtual and remote) that enhance trust, psychological safety, emotional intelligence, and the principles of neuroleadership to drive performance.

5.6 Summary

Neuropsychology, neuromarketing, neurocognition, and now even neuroeconomics – neuro is a popular prefix in today’s jargon. While loosely used, the intention seems to imply that perhaps for the first time we have more insights into the human brain and its links to psychology beyond its anatomy and physiology.

Cambridge University suggests that the pre-frontal cortex of the brain is still developing in the 30s and that human beings possibly start adulting once it is done. This could have impact on the choices made by our purposive sample over 50% of which was in the age-group under 30 years. It could lead to conjectures that this population may be in higher need of our mediating variables like psychological safety and trust and emotional intelligence.

But also, that they are creating a lack of it in the workforce with their partially developed PFCs and that leadership and managerial roles need to be assigned to people above this age to suitably have developed their ability to decision-making and critical reasoning and problem-solving and developing empathy with others. Perhaps nature's role needs to be understood in the population and then the organisational training programs could leverage the nurturing part of human potential in their employees and leaders to a higher more satisfying degree.

Implications For Professional Practice

This study for leadership and management practices underscores the need for management and employees and their leaders to be cognisant of the impact of psychological safety, emotional intelligence and trust in the workplace. Understanding how to bullet-proof virtual workplaces in a way that employee's retention, engagement and performance are all part of the plan requires creating practices that allow for these variables to find a place in mainstream leadership and professional development. A 2020 report by the Neuroleadership Institute found that leaders could address the psychological needs of their employees by engaging in transparent decision making and stating clear

objectives. To facilitate a sense of belonging and connection, leaders should enact positive role modelling and provide avenues for peer support.

David Rock's seminal work on Neuroleadership which emerged after his PHD thesis was submitted in 2010 in the Neuroscience of Leadership has got attention from researchers and practitioners in the last 5-7 years. Rock introduced the SCARF model to summarize the five social domains that drive human behavior: Status, Certainty, Autonomy, Relatedness, and Fairness. Talking a lot about the future, providing clear expectations, allowing others to make decisions and take charge, having a strong presence, being authentic, and keeping their promises are some of the traits that make Neuroleadership a strong model worthy of practice. The fact that it's not as academic and more practical is probably why its not adapted easily into corporate LD programs. It is seen as complex and hard to measure. In the last 5-7 years however, there seem to be more research studies and journal articles suggesting organisational consultants and talent managers do need a new workable construct to build the future of leadership.

5.7. Specific Needs for Further Research

It was interesting to find a recent study in China on psychological safety and leadership and the workforce (Wang, *et al.*.2024). And our study focuses on workplaces in India allowing for inter-country data exchanges in the future and to have best practices that work across the Asian continent from a cultural perspective. For the first time Leadership and management studies in theory and practice are gaining relevance across the East, a fact belied by the high number of Western research papers quoted until 2018. Post pandemic is when countries across the Atlantic Ocean have started to measure their own practices and see how their work cultures have been impacted by virtual workplaces.

Emotions in themselves are very differently processed in the east versus the west and both trust and emotional intelligence could be studied theoretically in greater detail to understand the work ethos and develop leadership and management practices as perhaps Japan did in the 70s and the United States in the 80s and 90s. Much has changed since Tallis criticized "the mistaken belief that the natural sciences (physics, chemistry, biology and their derivatives) can or will give a complete description and even explanation of everything, including human life" (Lee, Senior and Butler, 2012).

Today's AI world calls for quick behavioural competencies to maintain or develop critical reasoning and ways to process negative emotions in a human rather than machine-led way. Organisational cognitive neuroscience needs to catch up with machine learning and come out of laboratories into practice with a loud bang. The relationship between mental states and brain states is incomplete when analysed outside of the eco-system that a corporate workplace creates, more so, a virtual environment that shapes culture and people dynamics way different than what consultants and management are familiar with for almost a hundred years since industrialization came in. Some tweaks were made or rather, just happened when services became the larger share of corporate bottom lines, but not much went into identifying the new workforce dynamics. Leadership development and skill training continued with the same content and programs as before. When the multinational corporations and global organisations took place with expansion to new markets, the same leadership and management models continued without any adaptation to cultural or sociological nuances in different geographies. Applying neuroscientific techniques to leadership research will surely advance this cause. A word of caution though - appending of 'neuro' to almost every field of scholarly research does far more harm than good.

5.7.1 Clinical vs non-clinical and medical vs practitioner usage.

Neuropsychology is a relatively new discipline within the field of psychology, and the beginning and development of functional brain imaging technologies in the 1980s and 1990s generated a period of rapid growth in this emerging area, since researchers could better analyse and provide evidence of brain-behavior relationships (Kosslyn and Koenig, 1992). While neuroscience has been subject to some debate, more recent research has shown that are our actions are influenced by the brain and that therapy can also change the brain (Farrow *et al.* 2005; Nakao *et al.* 2005; Paquette *et al.* 2003; Hannah *et al.* 2013; Marshall 2009; Porto *et al.* 2009).

5.7.2 Evidence-based Neuroleadership and newer user-friendly models for leadership and performance

Since David Rock coined the term Neuroleadership in 2008 much of the research led by his institute as well as an annual conference are all still limited by geography. As a construct that builds on neuroscience and the importance of neuroscience is now paramount as we navigate AI, it seems realistic to explore the subject and relate it to other leadership development that's shaping future leaders. LD itself has gone stale after US fortune 500 companies GE IBM and some others in the 90s invested heavily to build pipelines and groom and standardise the workforce as they expanded across geos. Since then, the same models continue and Leadership has become more of a team sport. So, its time to revisit the science behind the sport to take it next level as the world gets more digital, leadership models that were designed for process-driven manufacturing and industrial units with well laid out hierarchies don't fit.

5.7.3 In an AI world, Innovation and creativity is a necessary skill for the future workforce.

The "default network" is a part of the brain that neuroscientists have found is tied to innovation. (Waytz & Mason, 2013). The brain is never at rest. Even when the brain is not focused on a particular thought, areas in the brain remain active. During these unfocused times, creativity is at its peak and those "eureka" moments are most likely to occur. The human brain needs unfocused time to spur creativity and innovation (Waytz & Mason, 2013). AI and machine learning have taken over most logical and process-driven cognitive tasks for humans. Critical thinking and Intuitive decisioning and risk-taking are some of the skills that will keep human potential at an advantage in the decade ahead. The impact of psychological safety and emotional intelligence could be of importance in upleveling creativity and innovation and thereby enhancing employee performance. Exploring how Neuroleadership through SCARF and dance of insight, two key concepts in the model can help train these competencies could be a way to fast-track development.

5.7.4 Developing new future skill ready leadership models

There is still resistance on the part of Leadership and Corporate management to call out to Performance and/or brain-based coaches and psychologists when looking at developing future leaders.

Senior executives, being academically trained and analytical, will want a theory base, evidence and research to support the introduction of any new way of thinking into their organization. A brain-based approach to coaching may provide an answer to this challenge, for a number of reasons.(Rock, 2006). While David Rock intended Neuroleadership to be a Coaching model for leaders, with some more practice-based

research measurements, and a construct that's validated for current competencies it could be a valuable base for Leadership models in a digital world.

CHAPTER VI

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

The future of this study lies in the theory of reasoned action how we can persuade individuals to participate in a behaviour or behaviours using Neuroleadership to propel employees towards performance in virtual workplaces. This would help align to the larger organisational goals of more cohesive and productive remote teams.

Neuroleadership is relevant more than any other models because it allows us to go beyond the realm of the obvious behaviours giving us tools to tap into a deeper perspective. That made is critical to exploring how neuroleadership principles can be operationalized in virtual workspaces with these deeper to enhance trust, promote psychological safety, and leverage emotional intelligence. Addressing this gap will not only contribute to theoretical development in the emerging field of neuroleadership but also offer practical strategies for organizations seeking to navigate the complexities of managing virtual teams in an increasingly digital world.

This study explored the influence of neuroleadership practices on employee performance in virtual workspaces, with a focus on the mediating roles of trust, psychological safety, and emotional intelligence (EI). Amidst the digital transformation and proliferation of remote work, the research emphasized the necessity for a leadership paradigm that integrates neuroscience-based principles to meet the complex demands of distributed teams.

A quantitative methodology was employed, surveying 636 professionals across various industries and geographies. The theoretical framework was grounded in Neuroleadership Theory (Rock, 2008), Social Cognitive Theory (Bandura, 1986), Psychological Safety Theory (Edmondson, 1999), and Emotional Intelligence Theory (Goleman, 1995). The constructs of trust, psychological safety, and emotional intelligence were tested as mediators between neuroleadership and employee performance using PLS-SEM modeling via SmartPLS.

The findings indicate a statistically significant relationship between neuroleadership and all three mediators, with emotional intelligence showing the strongest correlation ($\beta = 0.804$). Trust had the greatest direct impact on employee performance ($\beta = 0.499$), followed by psychological safety ($\beta = 0.301$) and emotional intelligence ($\beta = 0.176$). These results confirm the validity of the proposed model and support the conclusion that neuroleadership, when effectively deployed, enhances team performance indirectly through these psychosocial mechanisms.

6.2 Implications

6.2.1 Theoretical Implications

This research makes several contributions to the field of organizational behavior and leadership studies. Firstly, it reinforces the relevance of neuroscience in the understanding of modern leadership, bridging biological, psychological, and behavioral sciences. The study extends the SCARF model's application in virtual contexts, thereby enriching neuroleadership theory by illustrating its practical outcomes in digital work environments. Furthermore, the integration of emotional intelligence and psychological safety into the neuroleadership paradigm strengthens the interdisciplinary nature of

leadership development. This highlights the importance of self-regulation, empathy, and interpersonal trust as crucial mechanisms through which neuroleadership manifests effectiveness in remote settings.

The study also contributes to the growing literature on remote team dynamics by quantifying the mediating roles of trust and psychological safety. It situates these constructs within a brain-based leadership model, reinforcing earlier propositions by Rock (2009) and Goleman (1998) that emotionally intelligent leadership is essential for organizational coherence and resilience in the face of uncertainty.

6.2.2 Practical Implications

For practitioners and organizational leaders, this research provides a validated model that can be used to inform leadership training and human resource development in remote and hybrid work environments. Organizations can design interventions that promote neuroleadership behaviors—such as fostering autonomy, fairness, and relatedness—to build trust and psychological safety within virtual teams.

Moreover, leadership development programs should incorporate neuroscientific concepts such as neuroplasticity, which posits that leadership skills can be cultivated through consistent practice and reflection (Cacioppo *et al.*, 2008). This opens opportunities for leveraging non-invasive techniques like mindfulness, journaling, and biofeedback to enhance self-awareness and emotional regulation.

By highlighting the outsized impact of trust on employee performance, the study underscores the urgency for organizations to create trust-rich cultures. Given that trust remains the least explained variable in the model ($R^2 = 0.151$), organizations must look beyond leadership behavior alone and address structural and systemic enablers of trust, such as transparent communication, recognition systems, and inclusive decision-making.

Finally, emotional intelligence—while a relatively modest direct predictor of performance—serves as a foundational competency that enhances leaders' capacity to interpret non-verbal cues and regulate emotions in digital settings where such cues are often muted.

6.3 Recommendations for Future Research

This research offers a strong foundation but also presents several avenues for further inquiry:

a) **Longitudinal Studies**: Future research should adopt longitudinal designs to track how neuroleadership practices evolve over time and influence performance and psychological variables across different business cycles and organizational changes.

b) **Qualitative Insights**: A qualitative or mixed-method approach would enrich the findings by capturing deeper nuances in how employees perceive neuroleadership practices. Interviews, diaries, and focus groups could help understand emotional and cognitive shifts in response to specific leadership behaviors.

c) **Cultural and Sectoral Variations**: While this study is grounded in the Indian context with a concentration in the IT sector, replication across different geographies and industries would increase generalizability. Culture-sensitive adaptations of the SCARF model might reveal varying degrees of importance for constructs such as fairness or autonomy across societies.

d) **Neurological Measurement Tools**: Researchers could consider incorporating biometric or neuroscientific tools such as EEG, HRV, or

fMRI to empirically validate changes in brain activity correlated with leadership interventions. This would deepen the scientific rigor and provide tangible proof of the "rewiring" process discussed in this study.

e) **Model Expansion**: The current framework could be extended by including additional mediators or moderators such as motivation, resilience, or cognitive load. Likewise, antecedents such as personality traits, organizational culture, and team composition may provide further explanatory power.

f) **Artificial Intelligence and Human-Machine Interaction**: As AI continues to shape virtual work environments, future research could examine how neuroleadership interfaces with AI-enabled systems and decision-making tools. Specifically, how leaders adapt when their cognitive and emotional processes are influenced by or integrated with machine learning algorithms.

g) **Leader–Follower Dynamics**: Another fertile area for exploration is the bidirectional influence between leaders and followers. Understanding how virtual team members' perceptions and behaviours shape leadership effectiveness could refine the neuroleadership model into a more reciprocal construct.

6.4 Conclusion

The advent of remote and hybrid work environments has redefined the traditional paradigms of leadership. This dissertation positions neuroleadership as a timely and essential framework to guide leaders navigating virtual teams. By empirically establishing the mediating roles of trust, psychological safety, and emotional intelligence, the study contributes to both academic theory and organizational practice.

In a world where technological acceleration and emotional fragmentation coexist, the call for brain-based, emotionally intelligent, and psychologically safe leadership is not just desirable but necessary. The findings advocate for a reimagined leadership model—one that embraces neuroplasticity, nurtures human potential, and fosters authentic connection in digital workspaces.

Soft skills are the new hard. Technical skills alone cannot guarantee organisational success. “Building organizational resilience with neuroleadership makes it obvious that the merger of the two concepts of neuroscience and leadership holds transformative potential for steering the convolutions of an era marked with quick reactions from digital world and dynamic organizational landscape’’ (Saluja, et al.., 2024, p.xxiii).

By making a case for leadership that is not only strategic but also deeply human, this research invites scholars and practitioners alike to rethink how leaders are developed, supported, and empowered in an increasingly complex and interconnected world.

APPENDIX A

SURVEY COVER LETTER

Hi everyone

Need your help with a response to this survey which should take less than 10 minutes of your time, but is extremely important to my research work.

My DBA research focuses on an exploration of Neuroleadership and its influence on certain behaviours and competencies in remote teams and virtual workplaces. Please note: All questions are mandatory and you are likely in a corporate or institutional workplace. You could be a people manager/supervisor or an individual contributor (select Executive then). You likely have experienced the WFH (work from home) option at your workplace currently or in the last 3 years.

Your contribution to this important piece of work which will inform how we train and coach leaders in the future to demonstrate specific qualities to build trust, psychological safety and emotionally intelligent workplaces, is valuable and appreciated. Go ahead and jump right in.

Survey Link: https://forms.gle/2mraFS2RnFpiyDDw8

Thank you for submitting your response. Your participation is voluntary and all responses remain confidential.

If you would like to connect or know more about my work, please reach out at https://www.linkedin.com/in/executiveleadershipcoachradhika

Cover letter emailed to CXOs/HR shared above the survey invite as below.

Dear CXO/HR

We have already connected briefly on this - I’m working on my Doctoral research project and need some quick help from you.

Could you and your team fill out the survey, so I have 10-50 survey responses by day of week, Month, Date. I am aware that you may not have a lot of responses, but every data point counts, so your team's input is valuable and appreciated.

Am happy to share the findings of the study with you and your LT once complete.

The email for the survey I send out is as follows. Feel free to edit or use as is.

warm regards

Radhika

APPENDIX B

INFORMED CONSENT

Not applicable as no personal attributes were collected or measured. Participants were told to respond only if they would willingly volunteer and that information was not going to be used for performance or financial measurements as even corproate names or personal names were not gathered.

APPENDIX C

INTERVIEW GUIDE

Neuroleadership in Virtual Workspaces

This is a Survey Questionnaire.

Thank you for responding to this survey which is purely for research purposes as part of a doctoral thesis. It is confidential and used as individual data points, not for any one organization.

All questions are mandatory. It should take less no more than 10 minutes of your time.

Questions that mention "Team leader" refer to your Supervisor or Reporting Manager or the Board (if you are a senior leader).

Demographics

1. **Age**
    A. Less than 25
    B. 25 to 40
    C. 40 to 60
    D. Greater than 60
2. **Gender**
    A. Male
    B. Female
3. **Role**
    A. Executive Role (individual contributor)

B. Managerial or Supervisory Role

4. **Virtual Work Experience**

   A. Less than 1 year

   B. 1 to 3 years

   C. 4 to 10 years

Impact of Neuroleadership on Employee Performance

Rate the below statements (5 – Strongly Agree, 1 – Strongly Disagree)

Construct		Item Statement	1	2	3	4	5
Neuroleadership	NL01	My team leader acknowledges my contributions					
	NL02	I feel valued and respected by my team leader					
	NL03	My opinions are considered important in team decisions					
	NL04	My team leader provides clear guidance on goals and expectations					
	NL05	I am well informed about changes that affect my work					
	NL06	There is consistency in how tasks and roles are communicated					
	NL07	I have the freedom to make decisions about my work					
	NL08	My leader encourages independent problem-solving					
	NL09	I can manage my tasks without unnecessary interference					
	NL10	I feel connected to my team members despite working remotely					
	NL11	My leader fosters a strong sense of team belonging					
	NL12	We maintain healthy and collaborative relationships in the team					
	NL13	My leader treats all team members fairly and equally					

Trust	T01	Rewards and recognition in the team are distributed justly					
	T02	Conflicts are handled impartially by the leader					
	T03	I believe my team members are competent at their jobs					
	T04	I can rely on my leader to follow through on commitments					

	T05	I trust the decisions made by my remote team					
	T06	I feel emotionally supported by my team					
Psychological Safety	PS01	I can share personal challenges with my team members					
	PS02	My team genuinely cares about each other's well-being					
	PS03	I feel comfortable expressing my ideas in the team					
	PS04	I can ask questions without fear of embarrassment					
	PS05	Team members freely share their thoughts and opinions					
	PS06	Mistakes are treated as learning opportunities in our team					
	PS07	I can admit to making an error without being penalized					
	PS08	My leader responds constructively to mistakes					
	PS09	I can take risks in my role without fear of negative consequences					

Emotional Intelligence	EI01	I feel safe challenging the status quo in team discussions					
	EI02	New and unconventional ideas are welcomed by the team					
	EI03	I am aware of how my emotions affect my performance					
	EI04	I recognize my emotional triggers during work interactions					
	EI05	I reflect on my emotional reactions after meetings or conflicts					
	EI06	I stay calm under pressure in remote work situations					
	EI07	I am able to manage my emotional impulses					
	EI08	I think before reacting emotionally in a team setting					
	EI09	I remain optimistic even when faced with setbacks					
	EI10	I consistently strive to improve my performance					
	EI11	I am driven to achieve goals despite working remotely					
	EI12	I can understand how my colleagues are feeling					
	EI13	I listen with sensitivity to others' concerns					
	EI14	I respond supportively to emotional cues in virtual meetings					
	EI15	I maintain effective relationships in my remote team					

Employee Performance	EP01	I can resolve conflicts constructively					
	EP02	I effectively communicate with team members through digital tools					
	EP03	I consistently complete assigned tasks on time					
	EP04	I meet or exceed my work targets					
	EP05	My quality of work remains high in a virtual environment					
	EP06	I work collaboratively with my teammates					
	EP07	Our team functions smoothly despite working remotely					
	EP08	There is a strong sense of unity in our virtual team					
	EP09	I am satisfied with my role and responsibilities					
	EP10	I enjoy being part of this virtual team					
	EP11	My current work arrangement meets my expectations					
	EP12	Communication within the team is clear and effective					
	EP13	I have regular and meaningful interactions with my team members					
	EP14	My leader communicates expectations well					
	EP15	I am mentally and emotionally invested in my work					
	EP16	I actively participate in team activities and meetings					
	EP17	I feel motivated to contribute to the team's success					

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