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What role can social cognitive neuroscience play in promoting prosocial behaviors in organizations

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WHAT ROLE CAN SOCIAL COGNITIVE NEUROSCIENCE

PLAY IN PROMOTING PROSOCIAL BEHAVIORS

IN ORGANIZATIONS

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In Organization Development

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By

Lynne Forbes-Zeller

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This research project, completed by

LYNNE FORBES-ZELLER

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Abstract

The purpose of this research is to establish a correlation between the integration of Social Cognitive Neuroscience (SCN) frameworks (e.g., The SCARF model) into day-to-day social interactions in the workplace. The study also sought to determine whether SCN practices can increase prosocial behaviors and improve a leader's influence. This qualitative study had four phases: an educational video, a self-assessment, a learning workshop, and an experiential learning exercise. Data were collected through eight interviews. This study revealed that understanding the brain's influence in social environments increased prosocial behaviors and positively impacted leader thoughts and actions. Data showed taking the self-assessment, learning and applying SCN research findings, and practicing The SCARF model altered all of the interviewees' awareness of self and others. For seven participants, it increased emotional intelligence (EQ) and skill-building. For six participants, their new insights led to modification of behavior, and this increased leader influence.

Keywords: social cognitive neuroscience, prosocial behavior, leadership development, workplace performance, The SCARF Model

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Chapter 1: Introduction

Companies are struggling to find new ways to improve agility, productivity, and employee engagement to meet market demands (Reisyan, 2015). Given this exceedingly complex business environment, prosocial behaviors such as trustworthiness are viewed as critical to the next phases of organizational evolution to bolster collaboration, productivity, innovation, and growth (Flemin, Mingo, & Chen, 2007; Reisyan, 2015).

Behaviors such as helping, sharing, courtesy, cooperating, trust-building, and volunteering are forms of prosocial behavior (Vieweg, 2018; Zak, 2019). They are positive social acts carried out to produce and maintain others' well-being and integrity (Brief & Motowidlo, 1986). Prosocial behaviors have important implications for organizations (Fleming et al., 2007; Reisyan, 2015; Vieweg, 2018). Prosocial behaviors enhance how an organization operates. They increase employee well-being, retention rates, and positively impact the bottom line and improve long-term outlook (Vieweg, 2018). Researchers have found prosocial behaviors such as putting others first or helping to be the strongest and most reliable predictor of operational success, including organizational performance (Mallén, Chiva, Alegre, & Guinot, 2014). Business cultures are composed of the practices, norms, and institutions developed, in part, to protect prosocial behavior. However, they differ in the kind, degree, and organization of such practices (Schroeder & Graziano, 2015; Vieweg, 2018).

Research data indicates that Social Cognitive Neuroscience (SCN) can provide leaders and employees with brain insights to bolster prosocial behaviors, such as helping, collaboration, and trust-building (Gordon, 2008; Rock, 2012). Proposed benefits of these brain insights concern an understanding of self or dealing with others (Gordon, 2008;

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Reisyan, 2015; Rock & Cox, 2012). Neuroleadership, the application of SCN theory to leadership practices (Ringleb & Rock, 2008), proposes brain insights specific to leadership effectiveness within organizations by directly considering the physiology of the mind and brain.

Leadership benefits include improvements in thinking, learning, making more effective decisions, overcoming negativity biases, finding more creative solutions, increasing the capacity for attention to critical tasks and goals, dealing more effectively with stress, improved emotional regulation, better insight to action, persuasion, collaboration, engagement, and outcome focus in the workplace (Gordon, 2008; Lukens, 2015; Rock & Cox, 2012). Additionally, a broader application of SCN theory at all levels of an organization can improve organizations' social circumstances, workplace conditions, and promote personal growth (Lieberman, 2007; Reisyan, 2015).

Advances in neuroscience have significantly increased the understanding of leadership development (Ghadiri, Habermacher, & Peters, 2012; Waldman, Balthazard, & Peterson, 2011). The human brain can support leaders by synchronizing the science of cognition, and behavior is now evident (Kiefer & Pulvermüller, 2012; Ringleb, Rock, & Ancona, 2014). A neural basis is formed for social inferences about feelings, thoughts, and intentions of others, allowing for understanding the impact of emotions on others and ourselves and how that relates to our success and failure (Kiefer et al., 2012).

There is an increased interest in applying SCN research key learnings to address questions surrounding organizational culture and business management effectiveness (Reisyan, 2015; Rock, 2009). Many of the most productive behavioral SCN uses involve guiding and shaping the behavior of self and others. Understanding how our brains

interact with our environment is central to applying SCN in the workplace (Lukens, 2015).

Employees have various competing needs that are driven by different motivators. The SCARF Model, developed by Rock (2009), incorporates SCN principles into motivation theory. Motivation theory, the reasons underlying behavior, states employees are motivated when their needs are fulfilled (Guay et al., 2010; Lawrence & Nitin, 2001). Recent research on employee motivation is cross-disciplinary; it blends traditional perspectives of human resources and organizational behavior with new neuroscience (Lee & Raschke, 2016).

The SCARF model offers specific behavioral domains for decreasing threats and increasing the sense of reward when working with others. The model is also designed to help business leaders understand how social interactions, both positive and negative, and our emotional reactions to these interactions occur in the workplace (Rock, 2012).

Prosocial Behaviors in the Workplace

Prosocial organizational behavior is broadly defined as behavior which is (a) performed by a member of an organization, (b) directed toward an individual, group, or organization with whom he or she interacts while carrying out his or her organizational role, and (c) performed to promote the welfare of the individual, group, or organization toward which it is directed (Brief et al., 1986). The concept of prosocial behavior includes several types of social acts with different consequences for individual and organizational effectiveness. A prosocial target can be the organization or an individual. There are distinctions between different kinds of prosocial behaviors. Some do not contribute to the accomplishment of organizational objectives. An example of an

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unfavorable organizational prosocial behavior is when an employee helps a coworker achieve personal goals that are not aligned with the corporate objectives.

Prosocial behavior is associated with individual workplace performance (Brief et al., 1986). Furnham, Treglown, Hyde, and Trickey (2016) found positive characteristics associated with prosocial behavior, including interpersonal sensitivity (trust, straightforwardness, compliance, modesty, and tender-mindedness), sociability (establishing and maintaining meaningful and effective relationships in the workplace), and inquisitiveness (openness and a learning approach).

Clarkson (2014) argues that prosocial behaviors encourage and facilitate collectivism in an organization. Ultimately, that collectivism promotes other prosocial behaviors. Organizational collectivism cultivates an altruistic culture, and it contributes to the enterprises' long-term sustainability. Prosocial behaviors affect an organization's ability to accomplish its objectives because prosocial behaviors act as a lubricant, easing social interactions necessary to meet strategic goals (Zak & Knack, 2001). The organization is more likely to thrive when its members cooperate, protect the organization from unanticipated hazards, and speak favorably about the organization to others (Brief et al., 1986). Research also shows that prosocial behaviors can be learned. Empathy and compassion training is associated with many intrapersonal and interpersonal benefits, ranging from increases in psychological well-being and health to increased cooperation, trust, and tolerance (Dreher & Tremblay, 2017).

Statement of Problem

Business leaders are working exceedingly hard to understand and balance the perspectives of an unprecedented variety of stakeholders in complex, continually changing environments. Many organizations operate on old theoretical foundations that inhibit the

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modern workplace (Gallup Inc., 2019; Petriglieri, 2020). These outdated practices are no longer useful; they are not agile enough to adapt to current demands, nor do they help workers align with the organization's greater purpose.

Organizations must consider new approaches that accommodate a variety of stakeholders. Methods must relate to the modern workforce; the process is relevant, easy to learn, and aligns with business objectives to improve workplace performance (Gallup, 2019; Gordon 2008). SCN research offers leaders and employees brain insights to improve work performance (Lieberman, 2007; Reisyan, 2015). Learning the mind/brain connection to social constructionism and social triggers will increase self-awareness (Berger & Luckmann, 2011; Rock, 2012). A leader's self-awareness and capacity to change self and influence others may boil down to how well they know their brains and their ability to intervene in otherwise automatic processes (Rock, 2009).

Significance of the Study

Today's business environment is complex and moving fast. Organizational systems deal with volatility, uncertainty, complexity, and ambiguity (VUCA), which adds confusion to the social context in workplace environments. In complex and uncertain environments, followers look to their leaders to make sense of the uncertainty and model behaviors that reduce threats, ambiguity, and uncertainty. They seek a leader that helps them make sense of the VUCA world.

Research has shown that awareness of prosocial brain-behavior is particularly relevant for individuals in leadership roles. Leaders champion and support rewarding experiences, such as a sense of trust and connectedness among employees, crucial for employee well-being, job satisfaction, and particularly organizational performance improvement (Reisyan, 2015; Rock, 2009; Zak, 2019). An integrated approach is needed

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when implementing a framework or model of leader behavior, relatedness, understanding of their environment, and employee engagement (Zwaan, Viljoen, & Aiken, 2019).

NeuroLeadership's organizing framework is based on four dimensions: decision-making and problem-solving, emotional regulation, collaboration, and facilitating change (Ringleb et al., 2008). There is relevance in applying the neuroleadership dimensions to increase a leader's effectiveness in today's complex work conditions. Neurobiological capacities occupy a high level of explanation relative to how our brain responds to work environments. With an understanding that the nature of work performance is, in part, a cognitive, neurobiological entity, it is possible to highlight what influence neuro-behavior may have on social processes.

The study proposes an exploration of neuroleadership learnings to improve leader effectiveness and work engagement. It looks at how adding neurobiological research findings to its organizational dimensions can ease social tensions and improve work relations.

Applying SCN knowledge to follower behavior helps business leaders understand the brain's influence on decision-making, emotional regulation, and how to influence others and improve collaboration. It also provides the ability to increase motivation and overcome follower resistance to change. Integrating cognitive neuroscientific knowledge with organizational science's leadership theories may bring business leaders closer to answering what constitutes effective leadership (Senior et al., 2011).

Research Question

The purpose of this research is to establish a correlation between the integration of Social Cognitive Neuroscience (SCN) frameworks (e.g., The SCARF model) into day-to-day social interactions in the workplace. The study also seeks to determine whether

SCN practices can increase prosocial behaviors and improve a leader's influence. This research will use a qualitative study design that investigates brain-based behavior in organizations. The following research question is explored: "What impact, if at any, can SCN have in promoting prosocial behaviors easing the social interactions necessary to meet strategic goals?"

Organization of the Study

Chapter 1 looked at SCN and how prosocial behaviors may shape business outcomes, the impact and causal effect of prosocial behaviors in the workplace, the statement of current problems, and the value and purpose of this study. Chapter 2 discusses the literature relevant to social cognitive SCN and the importance of prosocial behavior to business outcomes. The chapter reviews the neurobiology of prosocial behavior, the SCARF model, and an overview of what happens when the threat and reward receptors get triggered in organizations. Chapter 3 outlines the methods used in this study. Specific topics include the research design and procedures related to sampling, protection of human subjects, measurement, and data analysis. Chapter 4 reports the study results, including the research question and individual participants' findings from the five domains of the SCARF model and other favorable organizational prosocial behaviors and outcomes. Chapter 5 summarizes the findings. It presents a discussion of the study results, including conclusions, recommendations, study limitations, suggestions for future study, and a summary.

Chapter 2: Literature Review

This research project explored the use of SCN in the world of the corporate workplace. The project helped the organization's leaders understand social motivations, in the form of both threats and rewards, and how they might increase prosocial behaviors through the application of SCN research findings and practices. This chapter presents an overview of the field of organization science, organizational neuroscience, organizations as social cognitive systems, the neurobiology of prosocial behavior, The SCARF model, implications for human behavior, consequences in the workplace, the impact of triggering the threat response, and a concluding summary.

Organization Science

Organization Science is loosely defined as the set of disciplines that study humans' functioning in organizations and their well-being (Beugré, 2018). It is an interdisciplinary field, including industrial and organizational psychology, organizational behavior, human resources management, organizational theory, strategic management, and management. This area of research draws from other social science disciplines, including psychology, sociology, political science, economics, and anthropology.

Organizational Neuroscience

Organizational Neuroscience (ON) is a multidisciplinary field. It draws from neuroeconomics, SCN, and cognitive psychology (Senior, Lee, & Butler, 2011). It aims to build tools and techniques based on scientific developments in organizational behavior and recognize the role of social cognition and emotion in explaining human behavior at work. There is an increasing interest in applying neuroscientific methods and techniques to the study of organizational phenomena (Becker et al., 2010; Becker et al., 2011;

Beugré, 2010; Butler et al., 2007; Butler, 2014; Lee & Chamberlain, 2007; Senior et al., 2011).

Butler et al. (2007), Lee et al. (2007), and Senior et al. (2011) introduced the field of organizational cognitive neuroscience (OCN) to explain the role of neuroscience in human behavior in organizations. Lee et al. (2007) defined OCN as "the study of the processes within the brain that underlie or influence human decisions, behaviors, and interactions either a) within organizations or b) in response to organizational manifestations or institutions" (p. 22).

ON may be applied at the individual, group, organizational, and inter-organizational levels. Lee, Senior, and Butler (2012) distinguish between ON, SCN, and OCN. Specifically, they contend that ON focuses on brain anatomy and structures. In contrast, SCN and OCN deal with multiple levels of analysis. They are interested in the interplay between biological systems and cognitions. Scholars acknowledge an overlap between ON, SCN, and OCN (Beugré, 2010).

There has been an explosion of neuroscience books in the last decade. For practical purposes, authors of neuroscience books written for business leaders refer to SCN or OCN using the broad term neuroscience. For this study, SCN and OCN study the same phenomena and use the same research tools. The neural basis of topics such as decision making, emotions, cognitions, trust, cooperation, leadership, and ethics are studied by both disciplines using the same neuroscientific methods.

Social Cognitive Neuroscience

The application of SCN in the corporate environment marks a fundamental shift in applying organizational knowledge about human beings (Brown & Brüne, 2012). The change was so significant that the application of SCN in the organization became a

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defined field in 2008, called neuroleadership (Mobbs & Mcfarland, 2010; Ringleb, Rock, & Ancona, 2012).

The primary focus of SCN is understanding our self and others, self-regulation, and includes processes that occur at the interface of self and others, and the nature of automatic vs. controlled processing (Lieberman, 2007; 2012). Knowledge of the brain provides useful information about how people react toward others and understand the corporate world they regularly navigate.

The Neurobiology of Prosocial Behavior

Neuro-management studies (Rock, 2012; Wang, 2006; Zak, 2018) suggest that a high-trust prosocial culture substantially boosts an organization's performance. It promotes the reciprocity of behaviors such as employee engagement, retention, and well-being (Zak, 2018). A high-trust culture is also repeatedly found amongst high-performing organizations (Zak, 2018). Studies also suggest, when compared to low-trust companies, members of high-trust organizations felt less stress, were more engaged, and more productive (Zak, 2017; 2018).

Organizational citizenship behavior (OCB) is related to prosocial behavior (Mitonga-Monga & Cilliers, 2016). Individuals are willing to give something of themselves to contribute to the organization's well-being (Brief et al., 1986; Kjeldsen & Andersen, 2012). Chiu and Chen (2005) point out that OCB can positively influence an organization's performance and competitive advantage. Neuroscientists have learned that employees working in prosocial high-trust companies show OCB behaviors. They are more willing to put in the additional discretionary effort needed and are more likely to remain in their current role (Tang & Rock, 2009).

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Successful organizations need employees who will do more than their usual job duties and provide performance beyond expectations. OCBs describe actions in which employees are willing to go above and beyond their prescribed role requirements. Prior OCB theory suggests that these behaviors are correlated with organizational effectiveness indicators (Mitonga-Monga & Cilliers, 2016).

Employees working in high-trust prosocial work environments are healthier than those working in low-trust work environments (Zak, 2018). Social pain, such as rejection, is processed in the brain in much the same way as physical pain, so too does seeing someone else being socially rejected (Eisenberger, Lieberman, & Williams, 2004; Masten, Eisenberger, Pfeifer, & Dapretto, 2010). Social rejection or ostracism can lead to inflammation in the body (Slavich, Way, Eisenberger, & Taylor, 2010) and negative mental health consequences such as depression (Williams & Nida, 2011).

Prosocial behavior is thought to be necessary for effective organizational functioning (Zak, 2017). These patterns reflect actions that go beyond specified role requirements, such as cooperating with coworkers. Research indicates that cooperation and giving to others is not only good for the organization, but it is emotionally rewarding (Zak, 2018). Although numerous studies underscore prosocial behavior's ultimate rewards, an additional possibility is that humans give to others because giving feels good.

A growing body of evidence supports that trust brings joy, and the 'I want to help' effect promotes Oxytocin's release (OT). This complex hormone acts as a neurotransmitter in the brain. OT influences social interaction, modulates the human 'tend and defend' response, and plays a role in behaviors such as trust, empathy, and generosity (Zak, 2018). Positive social encounters stimulate the release of OT, and the

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neurochemical stays active in the brain for approximately 30 minutes after the event. In contrast, fear is related to prejudice, and fear, whether real or imagined, and high-stress are potent OT inhibitors (Daughters, 2016).

Neurobiological Threat and Reward System

The minimize threat and maximize neural reward response is an overarching, organizing principle of the brain (Gordon, 2000). This fundamental organizing principle of the brain has appeared in the literature for a long time (Olds, 1955; Olds & Milner, 1954). The human brain is continually monitoring the environment for potential harmful events to determine whether it needs to respond to a survival threat. The brain responds to threat events with a physiological reaction called a fight (challenge) or flight (retreat) event (Lewin 1947; Ringleb et al., 2008; Rock, 2009; Zak 2016; 2017).

This belief represents the likelihood that when a person encounters a stimulus, their brain will tag the trigger as good or bad. If a trigger is associated with positive emotions or rewards, it will likely lead to an approach response. If it is related to negative emotions or punishments, it will likely lead to an avoidance response. The avoidance response is extreme when the stimulus is associated with survival.

Research on human experiments (Zak, 2017) determined OT is the biological basis for the golden rule. If an individual behaves positively towards another, the recipient's brain will synthesize OT, which will motivate the receiver to reciprocate. The brain's OT production, combined with its effects on the central and peripheral nervous systems, encourages voluntary cooperation (Zak, 2018).

Zak (2018) learned OT makes it feel good to use prosocial behaviors such as cooperation with others. OT helps humans by increasing their awareness of others' emotional states; OT is the neurochemical substrate of empathy. By simulating how

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another individual feels, OT produces more effective cooperation among people (Figure 1). Furthermore, researchers took blood samples before and after various types of social interactions. They demonstrated that when one is trusted, one's brain produces OT (Morhenn, Park, Piper, & Zak, 2008; Zak, Kurzban, & Matzner, 2005).

Figure 1

How OT Creates Trust and Improves Mood and Organizational Performance
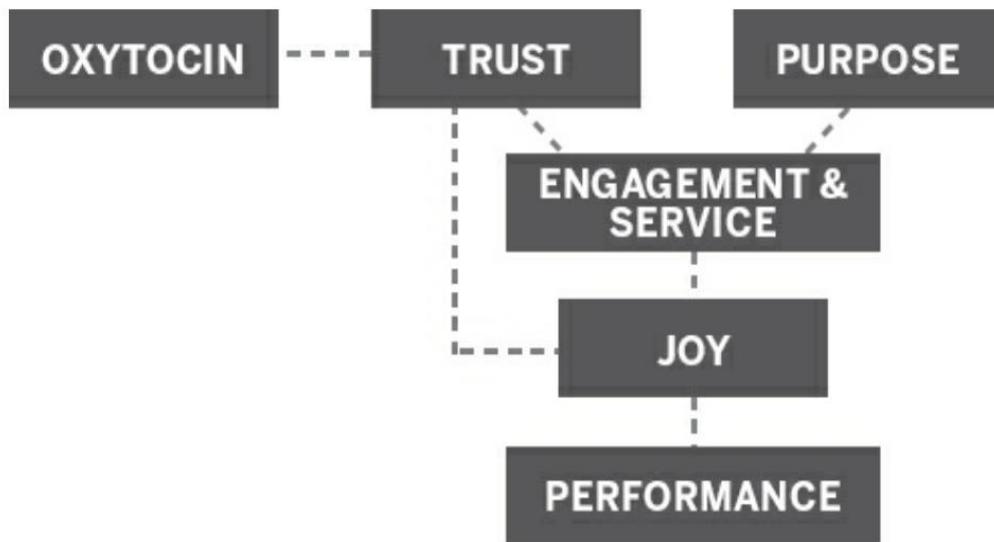
Note: Retrieved from the material presented in Trust Factor: The Science of Creating High-Performance Companies (Zak, 2018).

SCARF Framework

An SCN based framework, The SCARF model, developed by Rock (2009), addresses the five primary rewards or threats that tap into the brain's emotional system (Whiting, 2012). The five domains identified in the SCARF model are status, certainty, autonomy, relatedness, and fairness. They are social experience domains that the brain is always monitoring and refer to primary needs. Rock's (2009) research on social domains is reviewed in detail below as it is foundational to this study.

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Status. Humans are continually assessing how social encounters either enhance or diminish their status. Research published by Takahashi et al. (2009) shows that when individuals realize that they might compare unfavorably to others, the threat response kicks in, releasing cortisol and other stress-related hormones. Research has proven that cortisol is an accurate biological marker of the threat response within the brain. Feelings of low status provoke cortisol elevation associated with sleep deprivation and chronic anxiety (Rock, 2009). This data suggests how important it is for leaders to create inclusive, psychologically safe work environments. Values have a substantial impact on status. Organizations that appear to value money and rank more than an underlying sense of respect for all employees will stimulate threat responses among employees who are not at the top of the heap.

Certainty. When an individual faces a familiar situation, their brain conserves its energy. It relies on long-established neural connections that have hardwired this situation and the individual's response to it. A familiar scenario makes it easy to repeat what the person has done in the past. It frees an individual to do two things at once, such as talking while walking. The minute the brain registers ambiguity, the brain flashes an error signal. When the threat response is aroused, working memory becomes diminished.

Uncertainty registers as an error, gap, or tension and this must be corrected before one can feel comfortable again. Human brains prefer certainty; not knowing what will happen next can be profoundly debilitating because it requires extra neural energy. Furthermore, uncertainty diminishes memory, undermines performance, and disengages people from the present.

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Uncertainty is not necessarily debilitating. Mild uncertainty attracts interest and attention. New and challenging situations create a mild threat response, increasing adrenalin and dopamine levels just enough to spark curiosity and energize people to solve problems. Additionally, different people respond to uncertainty in the world around them in different ways, depending on their existing patterns of thought.

Autonomy. Studies have shown that when people feel they can self-govern their decisions without much oversight, stress remains under control. Human brains are always attuned to how social encounters threaten or support the capacity for choice at a subconscious level. By contrast, the perception of greater autonomy increases the feeling of certainty and reduces stress.

Relatedness. The brain's reaction to relatedness is shaped by whether the individual feels they are perceived as part of the same social group. Increasing globalization highlights the importance of managing relatedness threats. Collaboration between people from different cultures, who are less likely to meet in person, can be challenging. Productive collaboration depends on healthy relationships, which require trust and empathy.

Each time a person meets someone new, the brain automatically makes quick friend-or-foe distinctions and then experiences the friends and foes in ways colored by those distinctions. When a new person is perceived as dissimilar, the information travels along neural pathways associated with uncomfortable feelings (different from the neural pathways triggered by people who are perceived as similar to oneself).

Once people make a more profound social connection, their brains begin to secrete a hormone called OT in one another's presence. The same neurochemical is linked

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with affection, maternal behavior, sexual arousal, and generosity (Zak et al., 2007). OT disarms the threat response and further activates the neural networks that permit the human brain to perceive someone as 'just like us.' Conversely, the human threat response is aroused when people feel cut off from social interaction.

Fairness. The perception that an event has been unfair generates a strong response in the limbic system, stirring hostility and undermining trust. As with status, people perceive fairness in relative terms, feeling more satisfied with a fair exchange that offers a minimal reward than an unfair exchange in which the reward is substantial.

The cognitive need for fairness is so strong that some people do not hesitate to take extreme positions such as fighting or die for social justice. Individuals will commit themselves wholeheartedly to an organization they recognize as fair. In organizations, the experience of unfairness creates an environment in which trust and collaboration cannot flourish.

Implications for Human Performance in the Workplace

According to Chief Learning Office (Prokopeak, 2018), most leadership programs do not work. Leaders often struggle to transfer learning experiences into changed behavior. A McKinsey study on the success of leadership development programs (LDP) states a precondition of behavioral change often requires identifying thoughts, feelings, assumptions, and beliefs (Gurdjian, Halbeisen, & Lane, 2014; Prokopeak, 2018).

McKinsey's research indicates most LDPs are overwhelming to participants. Rather than teach a few critical concepts, most organizations use a one size fits approach (Gurdjian et al., 2014). A broad menu of topics may not be relevant to the organization, and they are adopted inconsistently (Gurdjian et al., 2014; Prokopeak, 2018). Leaders adopt concepts in their organization's leadership development models when they can

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connect concepts to current events and tie actions easily to day-to-day behaviors (Gurdjian et al., 2014; Prokopeak, 2018). Leaders want to know if they can understand and easily recall the model. Concepts must be relevant enough to use them every day (Derler, 2019; Gurdjian et al., 2014; Rock, 2009).

Fewer leadership models are brain-friendly (Derler, 2019). The SCARF model provides a shared language; it helps individuals identify thoughts, feelings, assumptions, and beliefs relevant to the day-to-day activities in work environments. The model can reduce social distress, increasing alignment with business goals (Reisyan 2015; Ringleb et al., 2008; Rock, 2009).

The brain influences how we navigate social experiences (Lieberman, 2007). The SCARF model can improve leadership capabilities by strengthening people's capacity to understand and ultimately modify their own and other people's behavior in social situations. Emotional regulation increases positive emotions to help leaders and followers become more adaptive (Rock, 2009; Zak, 2019).

Positive emotions broaden people's momentary thought-action repertoires. They build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources moving people away from a threat state to a reward state (Fredrickson, 2001).

Neurobiological human processes play out in our actions, thoughts, feelings, and motivations. When leaders understand their neurobiology, they can manage their emotional dynamics and influence the personal dynamics around them to reduce conflict and increase work performance (Zak, 2119). Understanding the social human brain can

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modernize how leaders respond to social interactions' complexities, reducing social barriers that reduce trust and collaboration (Young, 2008).

Work environments are full of complex social events such as being accepted or rejected, treated fairly or unfairly, and esteemed or devalued by others. Our responses to these events depend primarily on our psychological interpretation of them. The SCARF framework is especially relevant for leaders and managers or anyone looking to influence others (Lieberman et al., 2007; Ochsner et al., 2005; Rock & Cox, 2012).

Rock (2009) states that status is about knowing where one is in any hierarchy. Certainty concerns the ability to predict the future. Autonomy gives a sense of control over events. Relatedness provides a sense of safety with others, and fairness is the perception of fair exchanges between people.

Table 1 summarizes how the SCARF model links to the brain, minimizing threats and maximizing rewards in organizational settings. The table can help people remember, recognize, and potentially modify the core social domains that drive human behavior in their work environment.

Table 1

SCARF Description and Behavioral Impact

Domain	Description	Brain part	Threat	Reward
Status	Relative importance to others	Reduction in status from being left out activate same regions as *Physical Pain*	Do you need any advice? Annual performance review	Pay attention to work done and improvements Positive feedback and public acknowledgement Allow people to provide feedback on their own work
Certainty	Ability to predict the future. Without prediction, brain must use more resources, involving more energy pre-fontal cortex	Uncertainty generates 'error' in orbital frontal cortex. It takes attention away from goal	Change Lies Not knowing people's expectations	Vision, strategies, map, Plans (even if we know things won't be as planned) Turning implicit into explicit If unable to tell now, give date when you'll be able to tell
Autonomy	Perception of exerting control over events	Strong correlation between sense of autonomy and health outcomes	Inescapable stress can be highly destructive Working In teams reduces autonomy	A choice b/w 2 options: which one do you prefer? Enable individual point-of-need decision making w/o intervention of managers Hard wire autonomy in organization processes
Relatedness	Sense of safety with others	Need for safe human contact is primary driver like need for food Thoughts from people like us use same circuitry as our own thoughts	Meeting someone unknown Feeling let down, not involved	Shaking hand, swapping name, discussing something in common Share personal information with teammates Mentoring, coaching
Fairness	Perception of fair exchanges between people	Insular (involves in intense emotions such as disgust)		Increase transparency and level of communication Establish clear expectations Groups creating their own rules Help people see situations from other perspectives

Note: Adapted from the material presented in Your Brain at Work (Rock, 2009)

The SCARF model acts as an easy-to-remember framework to improve one's ability to label or reappraise one's emotions, regulating social threats and rewards. The model centers around three critical ideas: First, the brain responds to social threats and rewards with the same magnitude as physical threats and rewards. Additionally, a threat response generally reduces the capacity to make decisions, solve problems, collaborate with others, and increase a reward response. Third, the threat response is more common and intense, and often needs to be carefully minimized in social interactions. When individuals face

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threat stressors, their brains shift into a survival mode in which each person is for him or herself, the opposite of teamwork (Zak, 2018).

Rock and Cox (2012) surveyed 6,300 individuals using a psychometric questionnaire to build individual SCARF profiles to understand the five domains and which domain was of the highest priority. The survey results indicated that 46% of the responders felt the most important domain to be certainty, followed by relatedness, which 27% of the responders rated as most important. These findings generate multiple questions and contributed to the basis for this research.

The brain experiences the workplace first and foremost as a social system (Barraza & Zak, 2009; Rock, 2009). Adverse work events are experienced as a neural impulse. For example, when people feel betrayed or unrecognized at work, or when they are reprimanded or given an assignment that seems unworthy, this creates a neural impulse that is powerful and as painful as a blow to the head (Eisenberger et al., 2004; Rock, 2009; Slavich et al., 2010).

Research has shown that people who work in companies learn to rationalize or temper their reactions, in other words, they suck it up (Barraza et al., 2009). People can also limit their commitment and engagement and become purely transactional employees. They become reluctant to give more of themselves to their employer because the social context stands in their way (Rock, 2009).

Leaders who understand this dynamic can more effectively engage their employees' talents, support collaborative teams, and cultivate and encourage work environments that sustain effective change (Barraza et al., 2009; Rock, 2009).

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For years, economists who defined incentives almost exclusively in economic terms have argued that people will change their behavior if given proper incentives. Neuroscience findings provide a reason to believe that economic incentives are valued if people perceive them as supporting their social needs (Barraza et al., 2009). Status is enhanced by giving an employee greater autonomy to plan their schedule or the opportunity to develop meaningful relationships with those at different levels in the organization (Rock, 2009).

The SCARF model provides leaders with easy to learn cost-effective ways to increase a sense of reward. In doing so, SCARF principles also deliver a more granular understanding of the state of engagement, where employees act voluntarily and give their best performance. Research has shown that engagement can be induced when people working toward work objectives feel rewarded by their efforts, with a manageable threat level. Optimally, when the brain is generating rewards in several SCARF-related dimensions (Rock, 2009).

Triggering the Approach or the Avoid Response

The human brain has more threat than reward receptors for survival purposes (Rock & Cox, 2012). Researchers have documented that the threat response triggers in social situations tend to be more intense and longer-lasting than the reward response (Ringleb et al., 2008). The same neural responses as approach or avoid drive us toward food or away from predators and are triggered by our perception of how other people treat us. These research findings are reframing the prevailing view of social drivers' role in influencing how humans behave (Zak, 2017).

The threat response is mentally taxing and impairs the productivity of a person or an organization. The threat response diverts resources from other parts of the brain,

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including the working memory function, which processes new information and ideas (Rock, 2009). These types of events impair analytic thinking, creative insight, and problem-solving. In other words, when people most need their sophisticated mental capabilities, the brain's internal resources are either not available or reduced.

During a threat response, the limbic system is aroused (Rock, 2009). Cortisol is released, which increases blood sugar and suppresses the immune system so energy can be redirected to address the perceived threat. The threat response is both mentally taxing and costly to the productivity of a person or an organization. Because this response uses up oxygen and glucose from the blood, they are diverted from other parts of the brain, including the working memory function, which processes new information and ideas. A threat state impairs analytic thinking, creative insight, and problem-solving. When people most need their sophisticated mental capabilities, the brain's internal resources are taken away from them (Rock, 2009).

Furthermore, research indicates that when leaders trigger a threat response, employees' brains become much less efficient (Rock, 2009). In contrast, when leaders clearly communicate their expectations, they create well-being. Giving employees the latitude to make decisions, and treating the whole organization fairly, prompt an OT reward response (Rock, 2009). Moreover, there is a ripple effect; others become more effective, more open to ideas, and more creative. Understanding the threat and reward response can also help leaders implement large-scale change (Rock, 2009; Zak, 2019).

Research shows that every decision or action a leader takes either supports or undermines the perceived levels of status, certainty, autonomy, relatedness, and fairness among followers (Rock & Cox, 2012). Moving toward an engaged workforce starts by

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reducing the threats inherent in both the organization and its leaders' behavior. The threat response is often frequent, intense, immediate, and difficult to ignore; organizational and leadership behavioral threats often overwhelm reward (Ringleb et al., 2009).

Broader Implications of The SCARF Model

Knowing about the domains of SCARF may help individuals label and reappraise experiences that might otherwise reduce performance and connection. Labeling (Lieberman et al., 2007) and reappraisal (Ochsncr & Gross, 2005) are cognitive tools verified in brain studies to reduce the threat response. These techniques are more effective at reducing the threat response than the act of trying to suppress an emotion (Goldin et al., 2007). Instead of just trying to push the feeling aside, knowing the SCARF domains helps one understand why they struggle to think when someone has attacked their status and helps them respond more appropriately to social triggers.

The SCARF model provides a scientific framework for building self-awareness and awareness of others amongst leaders. Leaders may negatively impact the domains of SCARF unknowingly. They may have a clear vision for how things should be done and subsequently provide too much direction, not enough positive feedback, and unclear expectations. These actions do not support the five SCARF domains. When an employee works for a leader who makes them feel better about themself, the leader provides clear expectations, lets people make decisions, trusts them, and is fair. The follower will probably work harder for them as they feel intrinsically rewarded by the leader/follower relationship itself (Rock 2009).

Spending time around a self-and socially aware leader can activate an approach response. It opens people's thinking, allowing others to see the information they would not see in an avoid state (Rock, 2009). The SCARF model provides a means of bringing

conscious awareness to social needs and behaviors, alert leaders to people's core concerns, and showing one how to calibrate their words and actions to better effect (Rock, 2009).

Summary

SCN, and the tested application of brain-science in the workplace, is a quickly evolving multidisciplinary field. Published studies suggest leveraging brain science is beneficial to an organization's performance. It helps develop more effective leadership, which builds business cultures to increase prosocial behaviors and employee well-being in the workplace. Knowledge of the brain provides useful information about how people react toward others and helps employees understand and improve work relationships. Ferreting out and understanding the neural basis for these emotions provides insights into how organizations can better develop leadership development models.

Prior research proposes that SCN offers business leaders, HR, and OD practitioners' insights about how they can directly improve organizational performance. Brain specific behaviors can influence practices and behaviors that nurture a prosocial culture of trust. Organizations that sustain a high level of trust have substantially greater engagement by colleagues (Zak, 2018). Research suggests that prosocial behaviors such as trust should be considered an invaluable asset that can be measured and managed to sustain a competitive advantage over business rivals (Zak, 2018). SCN research advocates that the human brain is highly plastic (Reisyan, 2015). People can learn SCN frameworks to create new options for thinking, performing, and relating (Reisyan, 2015; Rock, 2009; Zak, 2017).

Chapter 3: Methodology

This chapter explains the research method and design, the sample population, human subjects' protection, instrumentation, data collection, and data analysis procedures. This study occurred in the workplace and used a qualitative approach to collect and report findings. The chapter closes with a summary.

Research Design

An exploratory research design was used in this qualitative data study using interviews. The study was organized into four phases. The study sequence was designed to build foundational learning about how the brain responds to threats and rewards and how it responds to social environments, followed by The SCARF experiential exercise. The exercise is an adaptation based on the research completed by Rock and Cox (2009).

A recruitment letter (Appendix A) was sent to prospective study participants explaining the study and an online informed consent form (Appendix B). Phase 1 included an SCN and SCARF Framework overview video (Appendix C). Phase 2 included the NLI online individual SCARF self-assessment (Appendix D).

Phase 3 consisted of two parts: 1) study participants joined a live instructional webinar conducted by me, teaching SCN research findings and practices, and The SCARF Framework (Appendix E); 2) Participants received an overview of a three week exercise using the SCARF Model. They used the SCARF tracker sheet (Appendix F) daily, noting which of the five domains they practiced during their workday.

Phase 4 was an in-depth, one-on-one phone interview (Appendix G). The interview was used to understand participant insights and the impact of using both the knowledge gained from SCN research and practicing The SCARF framework.

Data were collected, analyzed separately during the interview, and then compared after the data collection. This approach allowed a broad understanding to be generated of the variables studied; namely, the perceived behaviors that trigger social threats, the perceived actions that increase social rewards, a sense of participants perception about the universal need for social safety, the five SCARF model domains, and the relationship between SCN and prosocial behaviors.

Soliciting Participants

The study organization was solicited from my network. The organization's executive director (ED) communicated by phone and sent an introductory email letter to the board member committee that outlined the study focus, the voluntary nature of participation, and human subject protection. The board members were non-paid members volunteering their time to the study organization.

Research Sample Population

For this study, all study organization board members were the targeted participants. The target sample size for this study was 15-20 participants. The research study participants represented a range of industries. Table 2 outlines the details about the research population.

Table 2

Research Population

Demographics of the Research Population	%	Individuals
Number of individuals invited to participant in study	100	20
15+ years of management experience	100	20
Active, non-paid board member with the participating study organization	100	20
25-70 years of age	100	20
Level 1 (Top Level Management) within their employer's organization	60	12
Self-employed	40	8
Female	60	12
Male	40	8

Note. N = 20

All 20 study participants signed the Informed Consent Letter and Form (ICLF).
The purpose of the ICLF was to inform participants about the study's design, answer
possible questions, and, most importantly, avoid any possible coercion and adverse
consequences. Upon reviewing the study design and completing the informed consent
agreement, the study participants were notified of their participation. Table 3 outlines
individual participation in each of the study phases. Eight participants completed all
stages of the study, including The SCARF tracking exercise. All participants signed the
ICLF and met the requirements for an interview.

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Table 3

Individual Participation in Phases of the Study

Phases of the Study	Participation	Individuals
Phase 1: Completed the ICFL	100%	20
Phase 2: Watched the SCARF Overview Video	100%	20
Phase 2: Completed the NLI Self-assessment	100%	20
Phase 3: Attended the SCARF Webinar	100%	20
Phase 3: SCARF Tracking Exercise	40%	8*
Phase 4: One-on-One interview	40%	8*

*Note. *Participants represented 60% female, 40% male. N = 20*

Study Setting

The study organization was formed in 2012. They are a faith-based, international NGO. They help the impoverished through restoration projects, education, skills development, community building, and bring justice to vulnerable women and children. They have active projects in Central America, Costa Rica, Nicaragua, El Salvador, Guatemala, and Puerto Rico.

The organization's mission is to restore communities and prevent young people from drug and alcohol addiction, gang violence, sex trafficking/exploitation, child labor, dropping out of school, and to address the repercussions of living in poverty. Through their community projects, the organization offers life skills, vocational classes, spiritual growth, and language classes to help them find new opportunities and renewed hope.

The study organization's leadership team, including the board members, is dispersed across the U.S. and project locations. The organization is expanding its team and adding new members to its board. Leading a growing global non-profit in a VUCA

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world and a dispersed team became a challenge for the ED. A lack of familiarity between the board members created communication challenges, and after an increase in misunderstandings between members, the collaboration had diminished.

Furthermore, the ED was having difficulty giving members of the organization autonomy over decision-making. They were not offering much transparency regarding the details of the projects. Members admitted to having difficulty with perspective sharing, and project managers became frustrated.

The ED of the study organization hoped participating in this study would build their leaders' behavioral awareness and skills, create more empathy, and bridge some of the communication challenges the organization is faced with as a result of their growth.

Protection of Human Subjects

Approval to conduct the study was obtained by the Pepperdine University's Institutional Review Board. I also completed the Protecting Human Research Participants web-based training course sponsored by the National Institute of Health on September 25th, 2018 and received certification number 28816848.

The introductory cover letter outlined the study and the voluntary nature of the study candidates' participation. Participants consented to participate in the study by completing the initial ICLF. There were no apparent risks, costs, or financial incentives to participate in this study. All participants' responses were kept confidential. Only aggregate data were reported in the results. The data were safeguarded in a password-protected electronic database on my computer. Participant data were labeled using a code to conceal their identities.

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Measurement

The study had four phases. One instrument developed by me was used to collect qualitative data from the participants. The study elements included Rock's (2009) The SCARF framework tutorial video, a SCARF self-assessment to identify individual social triggers, a live webinar teaching the science and benefits of The SCARF framework, and an experiential exercise to practice The SCARF model and a tracking form followed by a one-on-one interview. These instruments are described in the sections below.

Descriptive data about how the SCARF model eased social interactions were discussed and tabulated. Experiential learning was part of the design of this study. This learning method is a powerful way to help people identify changes required to their skills, attitudes, and behaviors, then implement those changes for better performance.

Organization of the Study

The first phase of the study involved the solicitation of prospective study participants. The prospective participants were required to read and sign the online ICLF and agreed to participate in the study.

During Phase 2, 20 participants viewed an online video where SCN researcher David Rock (Learning, 2013) provided an overview of the five domains of social needs and the SCARF framework. Participants learned how the five domains represent the differences in people's social motivation. The five social domains activate the same threat and reward responses in the brain that humans rely on for physical survival. The length of the video was approximately 15 minutes.

Participants also completed a 19 question NLI self-assessment to determine the importance of each of the five domains of social experience: status, certainty, autonomy, relatedness, and fairness. The individual assessment was designed and administered by

the NeuroLeadership Institute (NLI, 2020). After completing The SCARF self-assessment, NLI emailed each of the study participants their assessment results. Each participant received a baseline understanding of their social triggers and how they influence behavior.

Higher scores for each item indicated a stronger affinity toward the domain. Higher scores provide insight into a personal threat trigger and a key driver in their social interactions. Understanding which of these five domains are key drivers for them increases their self-awareness as to why participants (and others) behave as they do in social interactions. Knowing more about personal reactions can lead to better self-regulation and gives individuals more options when dealing with other people. This assessment will increase the SCN knowledge, self-awareness, and help participants understand social-cognitive differences in social environments.

The NLI self-assessment required approximately 10 minutes to complete. Participants took the self-assessment once during the study. According to NLI (2020), individual results of the five domains rarely changes in subsequent assessments.

Due to the impact of COVID-19, Phase 3 of the study (the webinar) occurred in a virtual setting. The workshop provided an overview of how the brain reacts to social environments. The participants learned the SCN framework and The SCARF Model. The presentation was framed around Rock's (2009) book and other empirical research.

Part 2 of the workshop included a tutorial about The SCARF tracking exercise. 20 participants were asked to complete a three week activity in their workplace and during board meetings. Participants received a digital worksheet. Each participant was asked to commit 15 minutes daily, where they tracked their use of The SCARF framework's five

domains. They were asked to note any new insights, personal awareness, or changes in their or other's behavior when applying the SCARF Framework. The tracking sheet was designed to bring a personal understanding of social interactions and behaviors and provided the opportunity to practice and learn the SCARF framework in active work scenarios.

Experiential learning is broadly recognized as an effective way for students to learn (Binder, Baguley, Crook, & Miler, 2015). The teaching method allowed participants to be engaged in the learning process. It increased the participant's comprehension of the exercise themes. The participants learned to shift from passive to active participants in the learning process. Experiential learning also reduced resistance to change.

Phase 4 included a one-on-one, one hour phone interview. Before the interview began, eight participants confirmed they used The SCARF tracker sheet for a minimum of two weeks. Interviews were voluntary and held at a mutually convenient time and place. At the start of the interview, the study's purpose, the participant's rights, and an overview of the interview were reviewed. Time also was provided to answer any questions.

The 14 interview questions were designed by me and based on the framework of The SCARF model and neuroscience research (Rock, 2008; Zak, 2017). The questions were designed to gather additional insight into participants' perceptions of their SCN knowledge, use of The SCARF model, and the impact on prosocial behaviors and leader influence. The results were analyzed and insights were shared as recommendations to the company and its employees.

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Data Collection

  The instrument used to collect data was an in-depth, one-on-one phone interview. During the interview, some study participants referenced their individual NLI self-assessment. They may share insights from the webinar, reflections, or insights about their experience and observations from their new SCN knowledge and the experiential SCARF tracking exercise.

Data Analysis

  The instrument data was used to identify patterns. The data was organized and prepared by transcribing the interviews, optically scanning the data, typing up any field notes, and sorting and arranging the data into different types depending on the sources of information. The data was organized by categories, labeled by terms, and coded.

Data Analysis Procedures

  Descriptive statistics were used to analyze relationships between SCN and prosocial behaviors after the SCARF workshop and exercise and to explore any differences between any other significant findings. These safeguards ensured that participant anonymity was protected.

Summary

  The study had four phases and used a qualitative research approach with interviews to capture outcomes based on the four elements related to SCN practices and included Rock's (2008) SCARF framework. These methods were used to capture participants' reactions, learning, application, and outcomes related to SCN practices and The SCARF framework method. Chapter 4 provides the study results. Chapter 5 provides a discussion of the findings and areas for future research.

Chapter 4: Results

This chapter presents the findings of the study and ends with a summary. The data was organized around the interview questions.

The post-training interview gathered insights into how a portion of the participants used the framework and the impact of SCN practices have in the workplace. The interview collected data on how The SCARF framework exercise may have altered the participants' awareness of the brain's influence in social environments, the impact on leader behaviors, and what impact the framework had on prosocial behaviors, including leader influence.

A total of eight of 20 participants completed The SCARF exercise and a one-on-one interview. Participants provided data related to their day-to-day work environment and in their voluntary role with the study organization.

Interview Findings

Eight participants were asked to take a self-assessment through NLI to identify their social triggers. Participants provided several comments related to the NLI self-assessment results (Table 4). All participants experienced an increase in self and other awareness due to developing an understanding of how the brain influences social environments. Knowing about SCARF domains helped five participants label and reappraise experiences that might otherwise reduce performance and connection. Labeling (Lieberman et al., 2007) and reappraisal (Ochsner et al., 2005) are effective techniques for understanding self and reducing the threat response. Four board members met to discuss finances and the study organization's financial and strategic goals during the study. Each participant shared their NLI individual self-assessment results during this meeting and discussed how learning SCN research impacted them. One participant stated,

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"Learning other individual's social triggers helped me reduce their social anxiety or frustration." Another participant shared, "It helped me with perspective sharing. This changed how I communicate. I used the assessment information to communicate in a way that is meaningful to them."

Table 4

NLI Self-Assessment Awareness and Impact

Question: What did you learn from self-assessment, and how did this impact you?	%	Individuals
Increased awareness of myself and others.	100%	8
Inquisitiveness towards others.	87.5%	7
I became more transparent & this reduced social barriers increased communication between peers.	80%	6
I developed empathy for others.	80%	6
I evaluated my behavior.	62.5%	5
More intentional in how I communicate.	62.5%	5
It helped me understand the SCARF Model.	62.5%	5
I was able to understand people differently and respond differently.	62.5%	5
Increased awareness and understanding of social interactions.	50%	4
We were more open-minded as a result of sharing our social triggers.	37.5%	3
It reduced my social anxiety; I felt affirmed, more comfortable communicating with others.	25%	2
It helped me feel more secure and confident.	12.5%	1
It showed me that work styles are influenced by our social triggers.	12.5%	1

N = 8

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Phase 3 of this study included an experiential exercise using a tracking form to document when the participants practiced any of the five dimensions of the SCARF Model. Participants had several comments about the practice exercise (Table 5). Most felt the practice exercise as an effective way to integrate the SCARF system into their daily process. One of the participants stated, "Having a visual aid organized me and made the exercise easier." Another participant expressed, "The daily repetition helped me learn the framework. Practicing it helped me understand how to use it and its benefits. Overall, the exercise helped me learn the system and understand the definitions. Marking a sheet also provides accountability."

Table 5

SCARF Experiential Exercise Results and Impact

Question: How was the SCARF tracking form exercise beneficial in learning or practicing the SCARF framework?	%	Individuals
Nice visual aid. The domain prompts guided me; they helped me learn the five domains.	100%	8
Simplified the framework, making it practical.	100%	8
The exercise helped me understand how to use the SCN learnings in real life.	80%	6
Practicing daily (repetitive) and tracking my progress helped me see how I used the five domains.	50%	4
Practicing SCARF helped me learn how people respond when I use the framework.	50%	4
The exercise increased my social awareness.	50%	4
I like the sheet, but I would prefer learning on an app over the sheet.	37.5%	3
It made learning SCARF more fun.	25%	2
Keeping the score on a sheet was helpful. I started to see patterns in myself and others.	25%	2

N = 8

The SCARF framework was a new concept to all eight of the study interviewees. They all reported that the tracking sheet exercise simplified learning the framework and increased their understanding of each of the five social dimensions. They also found the practice exercise allowed them to practice when and how to use the framework in real-life work situations. For six of the participants, practicing the framework increased their confidence in SCN practices. Four participants felt their social awareness increased as a result of this exercise.

Overall, the participants liked the practice exercise and the use of the tracking sheet. Three of eight participants would prefer using a digital application instead of a form. Through increased engagement with the framework, some participants found the exercise helped them overcome their resistance to change. The teaching method simplified learning The SCARF model, which kept the participants engaged in the learning process. It increased their familiarity with using the system and the likelihood of the participants practicing the SCARF framework in the future.

During the training, the participants learned the relevance of the five domains and how they influenced their leadership behavior during social interactions. This new knowledge prompted an analysis of their behavior. Participants provided several statements related to how the SCN practices and using the SCARF framework influenced their leadership behavior (Table 6). For the eight interviewees, the analysis led to new insights and they modified their leadership behaviors. They each stated practicing The SCARF model increased self-regulation of actions and thoughts. The participants unanimously said that learning SCN practices increased their understanding of others and they communicated more effectively.

Table 6

Impact of Learning **SCN** *Practices on Leadership Behavior*

Question: How has learning SCN practices and completed the SCARF tracker exercise helped you perform differently as a leader and a manager?	%	Individuals
Increased self-regulation of actions, thoughts, and communication.	100%	8
Increased understanding of people, conflict, and how to communicate in a better way.	100%	8
I am more transparent, focused on rewards behavior towards others.	80%	6
Practicing transparency reduced social barriers and increased my influence.	80%	6
I developed more empathy towards others and our different viewpoints.	80%	6
My influence increased, and my peers were friendlier, more cooperative, and helpful.	80%	6
Self-awareness. I changed how I behave towards individuals.	62.5%	5
It reduced my personnel challenges. I had a greater capacity for other tasks.	50%	4
I am practicing perspective-taking with others.	50%	4
I am modeling SCN practices and the behavior I want to see from others.	50%	4
I am reducing or preventing conflict as a result of the model.	50%	4
I am more intentional about my behavior. I listen and observe differently.	37.5%	3

N = 8

Six participants stated that practicing The SCARF model increased their influence, reduced social barriers, and increased sociability, cooperation, and helpfulness between peers. Four participants were conducting a business meeting. During the discussion, one of the participants confronted another participant about their communication patterns. The group paused the meeting to learn more about each other's communication preferences. One participant stated,

> After this discussion, I learned that I was not transparent enough. I needed to create more certainty by being more transparent. My lack of transparency is keeping others from doing their job effectively. Becoming more transparent created certainty and relatedness with the other board members. Transparency reduced communication barriers. This action increased my team's trust and confidence in me as a business partner and their leader. We also got more done.

Four of eight interviewees stated the SCARF method improved employee relations. A participant said, "The words in the SCARF tool helped me label my behavior and others' behavior; this helped me to respond to the situation more appropriately." The impact of better employee relations is more available time to focus on other critical tasks. Another participant expressed,

> My first career was in the military. I am always looking for bad news, danger; this is what keeps you alive. It is also all-consuming. If I can shift my thinking towards rewards, I am a more positive communicator. I have more energy for things like planning, decision making, and mentoring. This state is more enjoyable and makes me a happier person.

All participants felt the SCARF framework and SCN research learnings led them to be more intentional about their behavior, which increased organizational citizenship behavior. One participant stated, "I am more positive and open-minded towards others. I am having more discussions, more collaboration, and there is more opportunity for me to say I'm sorry and validate their experience."

After completing the training, participants understood how the SCARF Model could be both a tool and a way of being applied anywhere when communicating and working alongside others. Leaders and workers are more likely to support and share SCN learnings if the practice positively impacts social interactions and increase prosocial behaviors (Table 7). Interviewees were asked if they shared the SCARF framework. Four participants shared the SCARF model with peers. Three participants shared the framework outside of their work environments.

Table 7

Sharing SCN Practices with Others

Question: Have you shared the SCARF model with other individuals?	%	Individuals
Shared SCN Practices and SCARF at work	100%	4
Shared SCN Practices and SCARF in a personal circle of influence	37.5%	3

N = 8

Sociability is a desired trait for leaders. Sociability traits indicate an individual is a friendlier, open, and more considerate attitude towards coworkers. These types of individuals seek pleasure and fulfillment from getting along with others. All interviewees stated that when using the SCARF model, they were more intentional about their actions, thoughts, and words.

Participants were asked to describe the behaviors observed during social exchanges and whether the framework facilitated sociability amongst peers or employees. Participants expressed several comments related to friendliness (Table 8). When using the

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SCARF framework, seven participants experienced an increase in collaboration. They linked this increase to being less threatening, being more approachable, and empathetic towards others. One participant stated, "I used the framework a lot to help people feel comfortable and to create relatedness."

Table 8

Impact of Increased Sociability

Impact Measured	Participation	Individuals
Leader viewed as more approachable, diplomatic.	87.5%	7
Increased the number of positive outcomes in social interactions; led to improved working relations and productivity.	50%	4
Work relations improved; we felt more in sync.	50%	4

N = 8

Six participants stated that The SCARF framework increased positive intention; it eased social tensions and increased their confidence. It helped them improve their ability to remain in an approach state. One participant stated, "I started showing up differently; my stress was reduced. My behavior change increased our relatedness, and this eased the tension in our communications; we were more in sync." Relatedness improved the quality of their social exchanges, future communication, and understanding of each other. They experienced more trust and relatedness from their peers. Several of the participants found work relations to be less problematic. They experienced increased inquisitiveness; their peers appeared more content, receptive, courteous, tactful, and diplomatic.

According to Mallén et al. (2014), leaders who demonstrate altruistic acts toward their employees encourage prosocial behaviors between individual team members. Furthermore, Clarkson (2014) argued that prosocial behaviors encourage and facilitate collectivism in an organization. Ultimately, that collectivism promotes other prosocial behaviors. Altruistic leaders use their influence and decision making to guide others in a way that leads to well-being. Therefore, altruistic leaders have the potential to demonstrate prosocial behaviors. Collectivism facilitates an altruistic culture in the organization and contributes to its long-term sustainability (Clarkson, 2014). To nurture an altruistic culture that will contribute to organizational viability, leaders must understand how the brain influences social behavior to motivate prosocial behaviors. This act will cultivate collectivism in team members.

Participants were asked what prosocial behaviors were increased when practicing SCN research learnings and The SCARF Model (Table 9).

Table 9

Impact on Prosocial Behavior

Question: How does the framework increase prosocial behavior?	%	Individuals
Increased trust	100%	8
Increased cooperation with peers, being helpful	100%	8
Increased fairness	100%	8
Increase in collaboration	87.5%	7
Increased relatedness	87.5%	7
Increased humanity (kindness, love, and social intelligence)	80%	6
Increased communication, transparency	80%	6
Increased empathy	80%	6
Increased partnership/collaboration	80%	6
Increased intention towards celebrating successes	80%	6
Praising others, encouraging	80%	6
General courtesy (How we Greet Each Other, etc.)	50%	4
Patience	50%	4
Reciprocity	50%	4
Taking on extra-role tasks	12.5%	1

N = 8

Summary

Chapter 4 presented the results of the study. The first section described where the participants found use and impact of Phase 2 NLI Self-Assessment. The second section discussed the Phase 3 SCARF practice exercise and tracking form. The third section discussed the impact learning SCN practice had on their leadership behavior. The fourth section discussed the benefits of sharing SCN practices with peers. The last section identified where the participants applied the SCN practices and including the SCARF framework. Chapter 5 will draw conclusions from the study results and discuss the implications for further research.

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<center>**Chapter 5: Discussion**</center>

The purpose of this research was to establish a correlation between the integration of Social Cognitive Neuroscience (SCN) frameworks (e.g., The SCARF model) into day-to-day social interactions in the workplace. The study also sought to determine whether SCN practices can increase prosocial behaviors and improve a leader's influence. This chapter discusses the study results, including conclusions, recommendations, study limitations, suggestions for future study, and a summary.

Impact on Awareness of the Brain's Influence in Social Environments

Developing awareness and understanding of the brain's influence in social environments had an impact on leader behaviors. Data showed that taking the self-assessment, learning and applying SCN research findings, and practicing The SCARF model altered eight participants' awareness of self and others. For seven participants, it increased emotional intelligence (EQ) and skill-building. Moreover, for six participants, their new insights lead to modification of behavior the increased leader influence.

An increase of self-awareness and how their social triggers may impact others in social environments were found. In some instances, as a result of participants sharing their social triggers with other participants, these participants developed an understanding of their peer's social needs. Sharing assessment results with other participants increased relatedness, trust, reduced social barriers, and increased collaboration.

Participants felt the assessment was relevant to their leadership work. The NLI self-assessment provided the participants with new leadership insights. Participants stated that the NLI assessment results were clear and concise, accurate, and easy to understand. They were able to quickly identify and relate their social triggers to scenarios in the

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workplace. Participants stated that using the assessment information will further their effectiveness as a leader and peer in their work environments.

Self-awareness is a crucial attribute in emotional intelligence and often the first step in developing a leader's EQ. The underlying abilities that make people outstanding in the workplace are self-awareness, emotional balance, a positive outlook, the drive to achieve and be adaptable, and the relationship competencies in social situations (Goleman, 2012).

The study data supported SCN findings; using The SCARF model in the workplace increased EQ for all participants. The domains of EQ varied by participant. The participants stated they increased social awareness, perspective sharing and trait empathy, adaptability, emotion perception of self and others, and emotional regulation.

EQ is a learned competency; how one manages oneself and their relationships impacts leader effectiveness and performance outcomes. Participants stated that the study practice exercise increased EQ knowledge. Increased EQ helped create leader adaptability and self-regulation. Increased EQ allowed participants to reduce the perception of an away (threat) state and increase their frequency of an approach (reward) state. Several participants expressed that leading with an approach state reduced stress and anxiety, improved communication, collaboration, and created work satisfaction.

The study findings suggested that prosocial behaviors increase when practicing SCN research findings and The SCARF Model. Prosocial behaviors such as trustworthiness are viewed as critical to the next phases of organizational evolution to bolster collaboration, productivity, innovation, and growth (Fleming et al., 2007; Reisyan, 2015).

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Prosocial behaviors have important implications in work environments. They are positive social acts carried out to produce and maintain the well-being and integrity of others (Brief et al.,1986). When using The SCARF framework, participants experienced increased prosocial behaviors such as trust-building, cooperation, fairness, collaboration, relatedness, increased thoughtfulness, kindness, and helpfulness.

Several studies link altruistic leadership to prosocial motivation and behavior (Dreher et al., 2017). Organizational culture benefits from prosocial motivation, psychological well-being to increased cooperation, trust, and tolerance. According to Mallén et al. (2014), leaders who demonstrate altruistic acts toward their employees encourage prosocial behaviors between individual team members. Furthermore, Clarkson (2014) argued that prosocial behaviors encourage and facilitate collectivism in an organization. Ultimately, collectivism promotes other prosocial behaviors. Collectivism fosters an altruistic culture in the organization and contributes to its long-term sustainability (Clarkson, 2014). Leaders must understand how the brain influences social behavior to sustain collectivism in team members.

Based on the study results, the introduction of SCN research has been moderately successful in skill-building. These findings suggested that the time investment in learning frameworks such as The SCARF model were worthwhile as the participants developed or nurtured valued leadership skills.

Impacts on Organizations

Leadership models tend to be far too complicated; leaders will use tools or models that are brain-friendly (Derler, 2019). The present study's design and training, which echoed NLI's leadership development success factors, were explicitly intended to be relevant to leaders working in high visibility positions to support the organization.

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Participants agreed that the training improved their leadership effectiveness. During the interview, participants also attributed several outcomes and successes to the training content and the practice exercise. The implication of these findings is that leadership programs will benefit from SCN training, and SCN research findings and frameworks can influence organizational performance.

Limitations

One limitation of this study is that it only used self-report data. People are often biased when they share their own experiences. One obvious impediment to self-reported data is that the participants might have consciously or subconsciously reported data to make themselves look like good leaders or make their organization look good. Additionally, their self-evaluations may be overly critical or overly generous. They may also be overly conservative or excessively generous in attributing changes to learning SCN practices and The SCARF framework. Alternatively, participants may not be able to access themselves accurately. All these factors influence the credibility of the findings. Practical recommendations for future research include the feedback approach from both the leader and the follower or peer. This approach may correct some of the biases that influence the credibility of the data.

Another limitation included that no baseline data were recorded. Hence, ascertaining if a change had occurred was difficult, relative to participants' skills, work structure, relationship or team dynamics, managerial communication frequency, or organizational performance setting. Therefore, the impacts of the training and practice exercise were retrospective and self-reported. Retrospective perceptions are influenced by several factors, such as participants' memory and experience since the event. These affect the accuracy and credibility of the data.

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A limitation of the small sample size is the interpretation of the data. Small sample sizes yield statistical results that are less widely generalizable to other groups (Rosenthal & Rosnow, 1991). There needs to be a careful balance between not dismissing outright what could be a real effect and not making undue claims about the impact. The data must be interpreted carefully. Also, three participants felt the time frame was too short to be generalizable.

The study was conducted during the COVID-19 pandemic. Some of the participants felt the unexpected demands, complexity, and uncertainty during the COVID-19 pandemic played a role in completing all the study phases. The eight interviewees did not perceive themselves as facing overwhelming challenges or significant life changes. Some commented that the adjustment to the pandemic was minimal. This is to say, virtual experience is different from in person. Data collected reflected experiences from virtual social exchanges with their peers. Perceptions and outcomes may be different during a virtual social conversation compared to face-to-face social interaction. In some instances, participant observations were limited to a top-of-chest to top-of-head view. For three participants, the physical distance or virtual environment presented interpretation challenges in determining the full impact of using The SCARF framework. Furthermore, it was not possible to observe the study participants in their natural settings, which may have lost deeper and nuanced impressions.

Suggestions for Further Research

Suggestions for future research are to conduct this study again, implementing the various recommendations for data collection advised in the previous section. Research could use a 360° data collection approach. For example, the leader and the follower or

peer would provide data to overcome some of the challenges with self-reported data. This method will also increase the amount of research data for analysis.

Future research could collect baseline data immediately before the training. Baseline data would be relative to participants' skills, work structure, team dynamics, frequency of managerial communication to measure insights, new skills, and behavioral change. Why some participants completed all phases of the study is unknown. Leaders that have a learning mindset predisposes them to see opportunities in learning new concepts and models. Organizations can encourage practicing a learning and development mindset to help leaders overcome VUCA challenges and overcome resistance to change.

Future research could expand the size of the study to yield statistical results that can be used by other groups and make the interpretation of the data clearer. Research would benefit from working with one organization and members communicating continuously. The study could also be conducted for a more extended period. An extended study would help understand if the results are sustainable in the workplace and if the SCN practices created new social norms helping achieve strategic goals. Future study design would consider using an app for the experiential exercise instead of using a digital form or hard copy. An app would allow participants to note their responses in real-time more efficiently.

Virtual work may become the norm for many in the future. Interpretation of the data may change under these virtual conditions. Future research would factor in the impact of conducting a behavioral study with a dispersed sample group in a completely virtual setting to increase the data's accuracy and credibility.

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Summary

SCN is one of the fastest-growing areas of interest in management practices. The insights gained from this study enable me to propose a more refined way of looking at leadership development and employee engagement using recent SCN discoveries and the method, The SCARF framework.

This study generated an understanding of the variables being studied; namely, the perceived behaviors that trigger social threats and that increase social rewards, an understanding of participants perception about their and their followers need for social safety, the five SCARF model domains, impact of leader awareness and related practices, and the relationship between SCN and prosocial behaviors.

Participants' reactions to the training were positive. They shared the information both in their professional and personal communities. They described having built a variety of skills and reported having made performance improvements.

The study provides the following key learnings to leaders of organizations, human resource, and OD practitioners:

1. Overall, the use of SCN practices such as The SCARF framework can increase self and other awareness, EQ, increase in prosocial behaviors, and skill development. Research shows that understanding of SCN and prosocial behaviors are relevant for leadership roles. Championing and supporting learning experiences, such as a sense of trust and connectedness among employees, are crucial for employee well-being, job satisfaction, and particularly organizational performance improvement (Reisyan, 2015; Rock, 2009; Zak, 2019).

2. This study's findings suggest that applying SCN research learnings can increase the leader's effectiveness, collaboration, thinking, focusing, planning, making decisions,

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and social interactions with others in demanding, highly complex, and continuously changing work environments.

While these findings can only be considered tentative results due to this study's limitations, the results are promising. Future examinations of this topic are expected to generate more insights about the anticipated outcomes from practicing The SCARF model. The quality of a leader's influence substantially impacts organizational effectiveness. These findings may help us understand why some leadership practices are more effective than others by connecting hard SCN to leadership.

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Appendix A: Recruitment Marketing Letter

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March 10, 2020

Dear prospective study participant,

My name is Lynne Forbes-Zeller. I am conducting a study to investigate to what extent, if any, how neuroscience could increase prosocial behaviors such as trust, cooperation, and collaboration, and how this may be beneficial to an organization. I am a student pursuing my Master of Science in Organization Development at the Graziadio School of Business and Management, Pepperdine University. This research is one of the graduation requirements of the program. If you are 19 years of age or older, are a board member or an employee of Seeds of Hope International, you may participate in this research. Gender is not a criterion for inclusion.

What is the reason for doing this research study?

This study intends to determine if neuroscience can improve social interactions by introducing new social norms using the SCARF Model. The purpose of the research is to establish a possible correlation between social cognitive neuroscience and increased levels of prosocial behaviors.

What will be done during this research study?

Your involvement in this study will require participating in four study phases. They include:

Phase 1 – complete one online consent form (5-10 minutes).

Phase 2 – View one TEDx talk about the SCARF Model from The NeuroLeadership Institute (approx. 15 minutes). Complete one online SCARF self-assessment (approx. 5 minutes).

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Phase 3 – Participate in a SCARF Workshop and exercise (approx. 90 minutes).

Practice the SCARF model for three weeks with the SCARF Tracker sheet (5-10

minutes per day).

Phase 4 – A personal interview, which will take approximately 60 minutes. You will be

asked to speak with the primary investigator and answer questions already formulated

for the study. The meetings will be completed over the phone. They should take place at

a private location or an enclosed environment within a public place.

About the "The SCARF Model"

The model is a summary of essential discoveries from neuroscience about the way

people interact socially. The model enables people to more easily remember, recognize,

and potentially modify the core social domains that drive human behavior.

The SCARF framework is made up of Status, Certainty, Autonomy, Relatedness, and

Fairness (SCARF). Understanding that these five domains are primary needs helps

individuals and leaders better navigate the social world in the workplace.

These five domains have been shown in many studies to activate the same reward

circuitry that physical rewards activate, like money and the same threat circuitry that

physical threats activate, like pain.

- **Status** is about relative importance to others.
- **Certainty** concerns being able to predict the future.
- **Autonomy** provides a sense of control over events.
- **Relatedness** is a sense of safety with others - a friend rather than a foe.
- **Fairness** is a perception of fair exchanges between people.
  What is the reason for doing this research study?

This study intends to determine if neuroscience can improve social interactions with the

introduction of new social norms using neuroscience and the SCARF Model. The

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purpose of the research is to establish a possible correlation between social cognitive

neuroscience and increased levels of prosocial behaviors.

What are the possible benefits to you?

Some of the benefits may include:

- Improving one's ability to label or reappraise one's emotions, which then helps to regulate social threats and rewards
- Increase in collaboration and influencing others
- Improvements in thinking, learning, and making more effective decisions
- Overcoming negativity biases
- Finding more creative solutions
- Increasing the capacity for attention to critical tasks and goals
- Dealing more effectively with stress
- Improved emotional regulation
- Better insight into action
- Provides behavioral tools for change readiness
- Increased employee engagement and outcome focus in the workplace
- Become a more effective leader

How will information about you be protected?

The study does not require to keep evidence of any protected personally identifiable

information (PPII's). Therefore, no PPII will be recorded during the interview process.

Your responses to the survey will be kept anonymous and confidential. All recordings,

transcripts, and notes will always be protected and remain in possession of the

researcher. Additionally, all interview recordings and transcripts, researcher's notes,

data spreadsheets, and analyses will be secured in the investigator's Pepperdine's G

Suite (password protected as well). Furthermore, all equipment is protected with

passwords and FileVault disk encryption.

If you have questions or would like to participate, please contact me at ███████████

or ███████████████████████

Pepperdine University | 6100 Center Drive | Los Angeles, CA 90045
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Thank you for your interest in this study.

Lynne Forbes-Zeller

Pepperdine University

Graziadio Business School

Master of Science in Organization Development Candidate

Appendix B: Informed Consent Form

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Protocol ID 20-02-1292

You are invited to participate in a research study conducted by Lynne Forbes-Zeller, MSOD Candidate, Pepperdine University, and principal investigator and Dr. Miriam Lacey faculty advisor at the Pepperdine University, because you are eligible because of your work with ███████████████. Your participation is voluntary. Please read the information below and ask questions about anything that you do not understand before deciding whether to participate. Please take as much time as you need to read this document.

Title of Project
Exploring What Role Social Cognitive Neuroscience Can Play in Promoting Prosocial Behaviors in Organizations.

Dear Prospective Study Participant,

My name is Lynne Forbes-Zeller, MSOD Candidate, Pepperdine University, I am conducting a study on the use of social cognitive neuroscience practices in the workplace, and specifically The SCARF Model. The study will explore how neuroscience could increase prosocial behaviors such as trust and collaboration and how this may be beneficial to an organization. Please read this form and ask any questions that you may have before agreeing to participate in the research.

Why are you being asked to be in this research study?
You are being asked to be in this study because you are either an employee or hold a board member role with ███████████████. All genders may participate. You must be 19 years of age or older to participate.

What is the reason for doing this research study?
This study intends to determine if neuroscience can improve social interactions with the introduction of new social norms using neuroscience and the SCARF Model. The purpose of the research is to establish a possible correlation between social cognitive neuroscience and increased levels of prosocial behaviors.

Risks
The research does not involve more than minimal risk to the subject. The potential risks include breach of confidentiality, possible boredom in responding to self-assessment or interview questions, and concern of individual responses being shared with the CEO of Seeds of Hope.

During the interview, participants will be asked to share their perceptions regarding social interactions in their day-to-day work environment. Some study participants may be concerned that their responses will be shared with the ████████████████ and that this could affect their status or view in the eyes of the institution.

All participant responses will be anonymous. If the subject includes any identifying information, it will be redacted from the data file by the researcher. Individual responses will not be shared, and only aggregate responses will be shared with the CEO of the institution and study participants.

Procedures
If you agree to participate in the study, the study will consist of four phases. They include:

Phase 1 – complete one online consent form (5-10 minutes).
Phase 2 – View one TEDx talk about the SCARF Model from The NeuroLeadership Institute (approx. 15 minutes). Complete one online SCARF self-assessment (approx. 10 minutes).
Phase 3 – Participate in a SCARF Workshop and exercise (approx. 90 minutes). Practice the SCARF model for three weeks with the SCARF Tracker sheet (15 seconds per day).
Phase 4 – A personal phone interview will take approximately 60 minutes in a private location or an enclosed environment within a public place.

How will my data be used?
Your data will be sent to researchers outside of Pepperdine University to increase understanding of how SCN can benefit businesses and business leaders.

Compensation
There is no compensation for participation.

What are the possible benefits to you?
There are no direct benefits to any of the participants. However, participants may find that they receive some of the following benefits:

- Improving one's ability to label or reappraise one's emotions, which then helps to regulate social threats and rewards
- Increase in collaboration and influencing others
- Improvements in thinking, learning, and making more effective decisions
- Overcoming negativity biases
- Finding more creative solutions
- Increasing the capacity for attention to critical tasks and goals
- Dealing more effectively with stress

- Improved emotional regulation
- Better insight into action
- Provides behavioral tools for change readiness
- Increased employee engagement and outcome focus in the workplace
- Become a more effective leader

How will information about you be protected?

Participant responses to this study will be de-identified. No direct references to the organization name of an individual's name will be taken.

Participation or Withdrawal

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights, or remedies because of your participation in this research study.

Alternatives to Participation

Your alternative is to not participate. Your relationship with your Seeds of Hope will not be affected whether you participate or not in this study.

Confidentiality

The record of this research will be kept private. In any report published, no information will be presented that will make it possible to identify a participant. Following the interview, the recorded data will be transferred to a password-protected computer, and the interview will be erased from the recorder immediately. Any printed information will be kept in a secured filing cabinet for three years and then destroyed. Further, no identifying information will be included in the research findings. All digital recording and hardcopy notes will be destroyed within six months of completing the study.

What are your rights as a research subject?

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.

For study-related questions, please contact the investigator: Lynne Forbes-Zeller at ██████████████████████████ or ████████████.

For questions concerning your rights or complaints about the research contact the Institutional Review Board (IRB):

Phone: 1(310) 568-2305
Email: gpsirb@pepperdine.edu

PEPPERDINE
Graziadio School of
Business and Management

What will happen if you decide not to be in this research study or decide to stop participating once you start?
You can decide not to be in this research study, or you can stop being in this research study ("withdraw") at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with Pepperdine University or ██████████ █████████

Documentation of Informed Consent
I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty. I understand that I may choose not to participate in this research.

You are voluntarily deciding whether to participate in this research study. By clicking on the, I Agree button below, your consent to participate is implied. You should print a copy of this page for your records.

I have read and received a copy of this INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES and understand it to my satisfaction. I hereby consent to participate in the research described.

☐ I agree
☐ I disagree

Audiotape Consent (please check)
☐ Yes, I consent to be audiotaped during the one on one interview. I understand that during this interview, I can and may change my mind and ask that the recorder be turned off at any time.
☐ No, I do not wish to have this interview audiotaped.

Would you like a copy of this form to document your participation in this research study?

☐ Yes

☐ No

Date: _____

Print Participants Name: _____

Appendix C: David Rock Youtube Video

Learning about the brain changes everything: David Rock at TEDxTokyo

YouTube Link: https://youtu.be/uDIyxxayNig

Appendix D: Sample NLI Self-Assessment Questions

On a scale of 1 (being low) to 5 (being high), identify whether you Agree or Disagree.

| On a scale of 1 (being low) to 5 (being high), Agree - Disagree | | |
Within the workplace, it is important to me that:		
1	Employees can speak openly without penalty.	Fairness
2	People get the rewards and benefits they deserve.	Fairness
3	At work, I like feeling like I am part of a group.	Relatedness
4	There is equitable access to opportunities.	Fairness
5	Explanations regarding decisions are reasonable.	Fairness
6	Decisions are transparent and explained to employees thoroughly.	Fairness
7	It is important to me that I feel connected with other people at work.	Relatedness
8	I like finding my own new ways of doing things in the workplace.	Autonomy
9	It is important to me to feel like I am in control, rather than others being in control of my choices in the workplace.	Autonomy
10	I enjoy having a clear and structured approach to my work.	Autonomy
11	It is important to me that I feel "heard" in meetings.	Fairness
12	It is important to me that my colleagues respect my decisions.	Status
13	I want other people to accept me at work.	Status
14	I hate the feeling of being micromanaged in the workplace.	Autonomy
15	I do not like it when I have to follow people's commands in the workplace.	Autonomy
16	In the workplace, I do not like to enter into situations without knowing what I can expect from it.	Certainty
17	I think that having clear rules and order in the workplace is essential for success.	Certainty
18	It is important that my opinions are valued by others.	Status
19	Rate the level of autonomy your employees have to make choices.	Autonomy

Source: *NLI, 2020*

NLI SCARF Assessment. (2020). NeuroLeadership Institute.

https://neuroleadership.com/research/tools/nli-scarf-assessment/

Appendix E: Neuroscience Research Findings and The SCARF Model Presentation

The SCARF Model

The quality of
conversations matters

*2008, The Scarf Model, Rock, D., Schwartz, J.

Appendix F: SCARF Tracker Sheet

STATUS - DID I DO SOMETHING TODAY TO ELEVATE THE STATUS OF SOMEONE ELSE? DID I USE INCLUSIVE LANGUAGE AND PRESENT MYSELF AS BEING EQUAL TO OTHERS?

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Day 8		Day 9		Day 10		Day 11		Day 12		Day 13		Day 14	
Day 15		Day 16		Day 17		Day 18		Day 19		Day 20		Day 21	
Day 22		Day 23		Day 24		Day 25		Day 26		Day 27		Day 28	

CERTAINTY - DID I DO SOMETHING TODAY TO HELP SOMEONE ELSE FEEL MORE CERTAIN? DID I SHARE INFORMATION OPENLY AND PROVIDE REASSURANCE WHERE I WAS ABLE TO?

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Day 8		Day 9		Day 10		Day 11		Day 12		Day 13		Day 14	
Day 15		Day 16		Day 17		Day 18		Day 19		Day 20		Day 21	
Day 22		Day 23		Day 24		Day 25		Day 26		Day 27		Day 28	

AUTONOMY - DID I DO SOMETHING TODAY TO HELP SOMEONE ELSE FEEL MORE AUTONOMOUS? DID I GIVE SOMEONE ELSE A FEELING OF CHOICE AND CONTROL?

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Day 8		Day 9		Day 10		Day 11		Day 12		Day 13		Day 14	
Day 15		Day 16		Day 17		Day 18		Day 19		Day 20		Day 21	
Day 22		Day 23		Day 24		Day 25		Day 26		Day 27		Day 28	

RELATEDNESS - DID I DO SOMETHING TODAY TO INCREASE SOMEONE ELSE'S SENSE OF BELONGING AND SAFETY? DID I HELP CREATE A CULTURE OF TRUST, FRIENDLINESS AND CONFIDENCE?

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Day 8		Day 9		Day 10		Day 11		Day 12		Day 13		Day 14	
Day 15		Day 16		Day 17		Day 18		Day 19		Day 20		Day 21	
Day 22		Day 23		Day 24		Day 25		Day 26		Day 27		Day 28	

FAIRNESS - DID I CONDUCT MYSELF WITH A VIEW OF PROVIDING FAIR EXCHANGE TODAY? DID I UPHOLD AGREED STANDARDS BOTH IN MYSELF AND WITH OTHERS? DID I AVOID SHOWING FAVOR TO ANYONE OVER **OTHERS?**

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Day 8		Day 9		Day 10		Day 11		Day 12		Day 13		Day 14	
Day 15		Day 16		Day 17		Day 18		Day 19		Day 20		Day 21	
Day 22		Day 23		Day 24		Day 25		Day 26		Day 27		Day 28	

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Appendix G: Interview Protocol

1	Where did you practice the SCARF framework over the last 30 days? (e.g., at work, home, in community, church) Have you shared your neuroscience knowledge or the SCARF framework with others?
2	What did you learn from the Neuroleadership (NLI) SCARF self-assessment?
3	How has the SCARF self-assessment helped you perform differently as a leader?
4	How have you found the *SCARF tracking form* to be beneficial in learning the SCARF framework?
5	When using the SCARF model, how does practicing the framework increase *any of the five domains for* yourself and others at work? (Status, Certainty, Autonomy, Relatedness, Fairness)
6	When using neuroscience research findings and the SCARF Model, what prosocial behaviors were increased?
7	Think of a work scenario that occurred after you studied the SCARF Model (in the last 30 days). Would you explain this event? Which of the five domains did you observe during this event? Which of the five domains influenced your behavior and actions during this event?
8	How has the SCARF framework brought *conscious awareness* to your social interactions?

9	How has the SCARF framework influenced how you communicate?
10	How has practicing SCN research findings and the SCARF framework changed your behavior? a) How have others responded to your change in behavior?
11	How has the SCARF framework improved communication between you and your colleagues, or you and your followers?
12	When you use the SCARF Framework, do you notice a change in another person's behavior?
13	Have you noticed any performance improvement as a result of using your neuroscience knowledge and The SCARF framework?
14	Do you feel there is value in teaching the SCARF model in your organization? Why do you think there is value in teaching the SCARF model to your organization? b. Who would benefit from learning the SCARF model in your organization, and why?