

Potential Applications of Neuroscience to Management

Carmine P. Gibaldi¹, James C. Gibaldi²

¹Harvard & St. John's University, ²Teachers College – Columbia University
(United States)

¹cgibaldi@fas.harvard.edu, ²Jcg2186@columbia.edu

Simply stated, Neuroscience can be defined as the study of how the nervous system and the brain functions. Neuroscience as a field and the study of the brain is being referred to as the great frontier, representing an area of science and study that can provide many questions and some answers. The purpose of this paper is to examine and speculate how and where neuroscience can provide some insight into the study and application of areas of management and the study of people in the workplace.

The intersection of managing and/or leadership with neuroscience was labeled “Neuroleadership” by David Rock (2008). As Ringleb and Rock (2008) writes, neuroleadership focuses on applying neuroscience to leadership development, management training, change management, education, consulting, and coaching. As an emerging field (neuroleadership) we can hope to better understand the science behind neuroscience and then be able to improve leadership practices, change management efforts, and affect in a positive way, innovation and creativity, and even employee engagement (Schaufenbuel, 2014). Lieberman (2007) stated that the study of the brain, particularly within the field of social, cognitive and affective neuroscience is starting to provide some underlying brain insights that can be applied in the real world/work world. He goes on to state that social neuroscience explores the biological foundations of the way humans relate to each other and to themselves and covers diverse topics that have a different degree to which they can be “operationalized” and unambiguously tested. Topics/issues include: theory of the mind, the self, mindfulness, emotional regulation, attitudes, stereotyping, empathy, social pain, status fairness, collaboration, connectedness, persuasion, morality, compassion, deception, trust, and goal pursuit. Many, if not all of these topics and issues are applicable to workplaces and leading the people within those workplaces.

Schaufenbuel’s whitepaper provides us with some application of neuroscience to 3 such areas, and provides us with some initial information. They include:

Leadership; Change management; and Innovation; Her ideas are as follows:

- 1- Leadership – Human Resource professionals can readily apply neuroscience findings to their leadership development activities, suggesting the application of the neuroscience behind trust and relationship building. The speculation is that “Resonant leaders open pathways in their employees’ brains that encourage engagement and positive working relationships. Schaufenbuel further states, “neuroscience findings are helping to connect the dots between human interaction and effective leadership practices. As the mapping of the human brain continues, we can expect to learn more about how the brain functions and how leaders can use this knowledge to best lead people and organizations”.

- 2- Change management – At the very least, neuroscience confirms what industrial psychologists and managers have known for decades: We/people fear change. Because the brain is hardwired for/to survive, change is usually perceived as a threat. It is thought that our brains today are subconsciously looking out for threats, five times a second. Some might say, why is this relevant to today's organizations? It does matter because when it comes to uncertainty, workplaces are filled with it (uncertainty). Consider the great rise in mergers and acquisitions, lose of jobs, etc., all causing stress and fear, and rooted in uncertainty. The deeper understanding regarding fear of change and fear of the unknown has great implications for managers, leaders, and other change agents as they approach, introduce, and bring about change efforts. Schaufenbuel, states that leaders and other change agents should try to reduce stress and anxiety on the part of those that will be experiencing the change by focusing on the positive aspects of the proposed change, asking direct questions, and “actively listening” (Rogers, 1957) to peoples concerns. This strategy can enhance the brain's ability to adjust its response to the change and perceive it as non-threatening. Leaders must also realize that the feeling of threat is contagious: if colleagues around us, or our leaders are feeling concerned and fearful, the feeling will spread. Concentration, memory, job satisfaction, etc are all adversely affected by uncertainty and fear.
- 3- Schaufenbuel and her colleagues have also reported that neuroscientists have uncovered two capabilities of the human brain tied to innovation and creative thinking. First, is the “default network”, which has the ability to transcend or “envision what it may be like to be in a different place or time”. Second, the “control network” is the area of the brain that keeps people on task. By utilizing this strategy leaders can engage the default network to encourage innovation and the control network to encourage focus. It is advised according to this logic that organizations establish programs similar to those at Google which allow employees protected time to work on an inspired project of their choice that advances the organization in some way. It is also advised that companies may want to establish blocks of time when employees turn off email and cell phones so they can focus their brains on a specific assignment rather than engage in multitasking.

David Rock (2006) has provided us with the greatest amount of insight into the application of neuroscience to people in the workplace and work world, and more specifically leadership and many related issues. Rock (2012) notes that Gordon and Lieberman & Eisenberger, have identified two themes emerging from social neuroscience. First is that much of the motivation driving our social behavior is governed by an overarching organizing principle of minimizing threat and maximizing reward (Gordon, 2001). Second, that several domains of social experience draw upon the some brain networks to maximize reward and minimize threat as the brain networks used for primary survival needs (Lieberman and Eisenberger, 2008). Another way to state it is that social needs are treated in much the same way in the brain as the need for food and water.

As Rock has attempted to further examine issues related to neuroscience and people in workplaces he has observed; “in a world of increasing interconnectedness and rapid change, there is a growing need to improved the way people work together. Understanding the true drivers of human social behavior is becoming ever more urgent in this environment”. To better address this issue Rock (2008d) developed the SCARF model that attempts to summarize the two themes raised by Gordon, and Lieberman & Eisenberger. The SCARF model does so within a framework that captures the common factors that can activate a reward or threat response in social situations. This model can be applied and tested in any situation where people collaborate in groups, including all types of work environments and even family and social settings. Our greatest interest lies in the application to and within work environments. The SCARF model involves five identified domains of human social experience: Status, Certainty, Autonomy, Relatedness, and Fairness.

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 (friend vs. foe). And Fairness is a perception of fair exchanges between people. Rock believes that the five domains activate either the primary reward or primary threat circuitry with associated networks of the brain. This model enables people to more easily remember, recognize, and potentially modify the core social domains that drive human behavior. Labeling and understanding these drivers draws conscious awareness to otherwise non-conscious processes, which can help in two ways. First, knowing the drivers that can cause a threat response enables people to design interactions to minimize threats. This could include knowing that a lack of autonomy activates a genuine threat response, a leader may consciously avoid micromanaging their employee/s. Second, knowing about the drivers that can activate a reward response enables people to motivate others more effectively by tapping into internal rewards, thereby reducing the reliance on external rewards such as money. This could be viewed/applied as a first line manager granting more autonomy to a subordinate as a reward to excellent performance.

It is our contention that further research is needed to examine and address possible wider implications of the SCARF model and the application of neuroscience to Management. Some of the more easily identifiable areas of application would include: self-management, training and development, coaching, leadership development, and the structuring of organizations (and understanding them as systems).

Can neuroscience affect the way we work?

The mysteries of the brain are still unfolding. We are now beginning to understand that the brain can rewire itself in remarkable ways. We know that organizational conditions shape the social environment of the workplace culture. We feel that this is one of the most significant findings of social neuroscience. Although the beliefs and customs of each culture will determine how the social brains interact, the universality of these discoveries has broad implications for every workplace on the planet.

Summary/Conclusion

We realize that we have only presented the tip of the iceberg and provided more thoughts for future research than answers. We know that brain research is the next area of major scientific breakthrough as technology has been over the last 50 years, and that we can see some of the implications for its application to management. Neuroscience findings are helping us to connect the dots between human interaction and effective leadership practices, and how might we better structure and manage organizations. This work has the prospect of affecting billions of people worldwide as it develops and is applied.

References

- [1] Eisenberg, N.I. & Lieberman, M.D. "fMRI Relate to Differences in Real World Social Experience". *Emotion*, 7; pp. 745-754. 2007
- [2] Ellenbogen JM, Hulbert JC, Jiang Y, Stickgold R. "The Sleeping Brain's Influence on Verbal Memory: Boosting Resistance to Inteference.
- [3] PLoS One. 2009; 4(1): e4117. doi: 10.1371/journal.pone.0004117. Epub; 2009 Jan 7.
- [4] PMID:
- [5] Farb, Norman. "Mindfulness Meditation Reveals Distinct Neural Modes of Self Reference". The Centre for Mindfulness Studies (www.mindfulnessstudies.com); Toronto Canada. 2007.
- [6] Farson, R.E. & Rogers, C. "Active Listening". University of Chicago Industrial Relations Center; Presentation; 1957.
- [7] Goldin, et al. "The Neural Bases of Emotion Regulation: Reappraisal and Suppression of Negative Emotion". *Biological Psychiatry*, 63; pp. 577-586. 2007.
- [8] Gordon, et al. "An Integrative Neuroscience Platform: Application to Profiles of Negativity and Positivity Bias". *Journal of Integrative Neuroscience*; 2008
- [9] Gross, J.J. & Ochsner, K.N. "The Cognitive Control of Emotion". *Trends in Cognitive Sciences Review*; Vol. 9, No. 5; May 2005.
- [10] Lieberman, et al. "Social Cognitive Neuroscience: A Review of Core Processes". *Annual Review of Psychiatry*; 58; pp. 259-289. 2007.
- [11] Ringleb, A. & Rock, D. "The Emerging Field of Neuroleadership". *Neuroleadership Journal*; 1; pp. 3-19. 2008. Ringleb, A. & Rock, D. *Handbook of Neuroleadership*. Neuroleadership Institute. 2013.
- [12] Rock, David. " SCARF: A Brain-Based Model for Collaborating with and Influencing Others". *Neuroleadership Journal*; 1; pp. 44-52. 2008.
- [13] Rock, David. *Your Brain at Work*. Harper Business. 2009.
- [14] Rock, D. & Schwartz, J. "The Neuroscience of Leadership". *Strategy and Business*. Issue 43; Summer 2006.
- [15] Scarlett, H. "Neuroscience: Helping Employees Through Change". Melcrum Communications, Ltd. (www.melcrum.com). 2012.
- [16] Schaufenbuel, K. "The Neuroscience of Leadership". UNC, Kegan-Flagler Business School (Whitepaper); 2014.
- [17] Scarlett, H. "Neuroscience: Helping Employees Through Change". Melcrum Communications, Ltd. (www.melcrum.com). 2012.