Neuroscience and Leadership Development: An Interview With Dr. Marian Ruderman and Dr. Cathleen Clerkin

In this issue, we continue our journey through the metaphorical construction site of organizational neuroscience (ON) with two builders of the field, Marian Ruderman, PhD, and Cathleen Clerkin, PhD. They work at the Center for Creative Leadership (CCL) in Greensboro, North Carolina. CCL is a non-profit organization whose mission is to advance the understanding, practice, and development of leadership for the benefit of society worldwide.

Marian Ruderman is senior Fellow and director, Research Horizons at CCL and is a thought leader whose recent work links neuroscience to the field of leadership development. Marian has coauthored or edited several books and has published articles in scholarly outlets including the *Academy of Management Journal* and *Journal of Applied Psychology*. Marian’s work has been cited in the *Chicago Tribune*, *Wall Street Journal*, *New York Times*, *Fast Company Magazine*, and many others.

Cathleen Clerkin is a postdoctoral research fellow at CCL whose work draws upon research and methodologies from organizational psychology, social psychology, and neuroscience. Cathleen’s work has been recognized by the National Science Foundation, the Fulbright Foundation, the Ford Foundation, and the Society for Personality and Social Psychology.

In this issue, we talk about the state of ON at CCL. Marian and Cathleen explain what that means to be co-principal investigators for CCL’s Neuroscience & Leadership Initiative. Their contribution to ON is through the application of neuroscience to the growth and personal transformation of leaders.

What are your current projects?

Marian - We’re working on a broad program of research called the Neuroscience & Leadership Initiative that
includes several components. With this initiative we are looking to apply findings in neuroscience, positive psychology, and contemplative practices to the field of leadership development. We are interested in integrating and applying these fields because they all look at emotions, neural functioning, and mindfulness in relationship to well-being and health. Our work is translational in the sense that our main objective is to take the existing literature and translate and apply it to leadership development, testing neuroscience principles outside of the lab and inside of leadership development experiences. While we are rigorous about collecting data to evaluate theory, ultimately, it is about whether our programs and interventions are useful to leaders. Our goal is to improve the efficacy of leadership development practices.

**How do you conduct this type of applied ON research?**

Marian- We take a multifaceted approach. Our first step was the traditional literature review. Once we got versed in the literature, we invited experts in the field to come to CCL. This gave CCL a chance to dialogue with the experts. We also reviewed the neuroscience information promoted through popular media. One challenge was weeding out the pseudo-science as there is a lot of hype in this area. Following the scientific and popular reviews, Cathleen and I with our colleague, Carroll Connolly, developed a model for the leadership development community. This model is now in the form of a white paper, available on the CCL website. We are using the paper to share our perspective with a variety of audiences—HR specialists, I-O psychologists, managers, youth, and our CCL colleagues as a way to engage in conversation about the topic. Based on what we learned from the literature, we are prototyping different interventions. The goal of prototyping is to examine the efficacy of different techniques for the purpose of developing leaders. In a first round of testing, we look to see how people respond to the new approach. Do people understand the intervention? Do they find it to be a worthwhile experience? What do they report learning from the intervention? Will they use the intervention after the training? Does it appeal to different audiences around the world?

In the following rounds of testing, we look at how the intervention relates to well-being and leadership outcomes. This is more of a typical research process where we use survey or experimental methods to test a hypothesis. For instance, we are currently testing out an approach for using biofeedback and breathing techniques to improve self-regulation. We have a long list of other neuroscience-related topics to pursue. Once we have data that a particular intervention contributes to the leadership development process, CCL will then use it with large groups of people. In addition to the applied aspect, we also plan on publishing our results in academic journals, so as to share our findings with the field.

**How is this work received by clients?**

Cathleen – Overall, I would say our clients respond very positively. It’s new, and something they don’t usually get in leadership development training. They’re very excited about the neuroscience initiative, especially when it comes to resilience, biofeedback and technology. The brain and the mind is something
leaders in different settings know is important but often don’t understand very well. Practitioners and leaders are very eager to learn more.

**How exactly are you using biofeedback?**

Marian - We’re using equipment from the **Institute of Heart Math** called the **Inner Balance Sensor**. The sensor is used with an app to allow the user to self-monitor the state of internal synchronization between the heart, breath, and the brain. Heartmath has conducted their own research on this tool in relationship to a variety of health, wellness, and educational outcomes. The idea is that the body and mind perform at a higher level when they are synchronized. There are lots of breathing tools available, but we are investigating this one because it provides instant feedback as to the degree to which the heart and brain are synchronized. Our participants like getting instant feedback, and the ability to self-monitor and modify accordingly adds an important dimension. We have run very preliminary tests with our colleagues to work out technological bugs, which we have found is a big obstacle to clients using something. Cathleen has been doing a lot of work to simplify the process.

Cathleen – We’ve been doing a pilot intervention by having colleagues use the inner balance sensor every day. People just download the app, plug the sensor into their iPhone, clip the sensor to their ear and seconds later they get feedback about their pulse, heart-rate variability, and their parasympathetic nervous system. The Inner Balance app automatically e-mails me feedback, so I get biofeedback data daily and can track people’s improvements. People are interested in this telescope into their brain and nervous system because that telescope isn’t usually available. It provides a new type of self-awareness and a new lens of self-improvement. It’s a good technology for applied ON as it makes the psycho-physiological processes more transparent and easy to understand. As we mentioned, our leadership application is still in the works, but we’ve gotten a lot of positive feedback. We are doing a full test with a leadership population this summer. Then the focus will move from whether or not you can plug this in and use it, to measuring psychological and physical changes.

**What would the ideal results of this experiment look like?**

Marian - There are three levels of things that we’d like to see. First, we’d like to show how it contributes to well-being over and above other leadership development processes. Second, we’d like to examine relationships between use of the breathing technique and performance, or an element of performance, (e.g. cognitive speed or decision making). Third, we want participants to find it helpful. Ultimately, we hope we can further a shift in the conversation of leadership development from self-awareness to self-modification.

**What challenges have you encountered in your work?**

Cathleen – There is a need for flexibility, to keep an open, yet critical mind. Everything in this area is so new; you have to be willing to both try out new interventions and to also go back to the drawing-board when something doesn’t work out. A big challenge is finding the tools and technology that work in an applied setting. Most CEOs don’t want to sit at a machine or be hooked up with goop in their
hair. When working with biofeedback, the technology doesn’t always work and you have to think on your feet and troubleshoot as you go.

Also, we’ve found that finding a common language can be a challenge. As Marian said, this is translational research and making neuroscience concepts and neuroscience terms understandable to people without scientific backgrounds has been a big part of our project. Language is powerful and the right translation is vital to get people to understand and buy into the importance of ON in relationship to leadership.

**What pushback have you gotten in your work?**

Marian - We’ve gotten two levels of pushback. One is that these interventions are too hippie and new age. If people have tried some form of meditation or mindfulness in the past and it didn’t go well, then they carry that forward and aren’t always open to related approaches. Second, for people who are real behaviorists, and many people in leadership development are, there’s a certain amount of reluctance to look inside the brain and mind. So, we learned to frame this as a critical addition to leadership development and not a replacement for a behavioristic approach. Leadership requires both the body and the mind. We try to show how ON relates to things like information processing, innovation, decision making abilities, as well as psychological capital.

**What advice do you have for people interested in this area?**

Cathleen – There’s room for more researchers and we need more work in this area. If you are planning on conducting applied ON research, I would recommend taking the time to translate the jargon. Some of the technical terms we take for granted can sound scary, misleading, or meaningless to someone outside of the field. Be prepared for push back, and for some bumps along the way. But I think it’s a budding field and I hope more people will join us. I think that many people are eager for more knowledge and research in this area and that once we have a common language and understanding of this interdisciplinary area, we’ll see the field really jump forward.

**What final comments do you have for TIP readers?**

We just encourage people to explore their interests in the topic. We welcome connecting with people via collaboration and conversation. Whether said connections take the form of a company that wants to try out our interventions, or researchers who have equipment that they’d like to try out in an applied setting—we’re open to either with the goal of improving leadership development.

**Conclusions**

We thank Marian Ruderman and Cathleen Clerkin for making us mindful of their work at CCL, and for sharing their perspectives as two builders of ON. Their work concerning leadership development reveals the power that comes with knowing your internal states and processes. Their experiences pioneering this work indicates that there is still a lot of building to be done in the metaphorical construction site of ON.