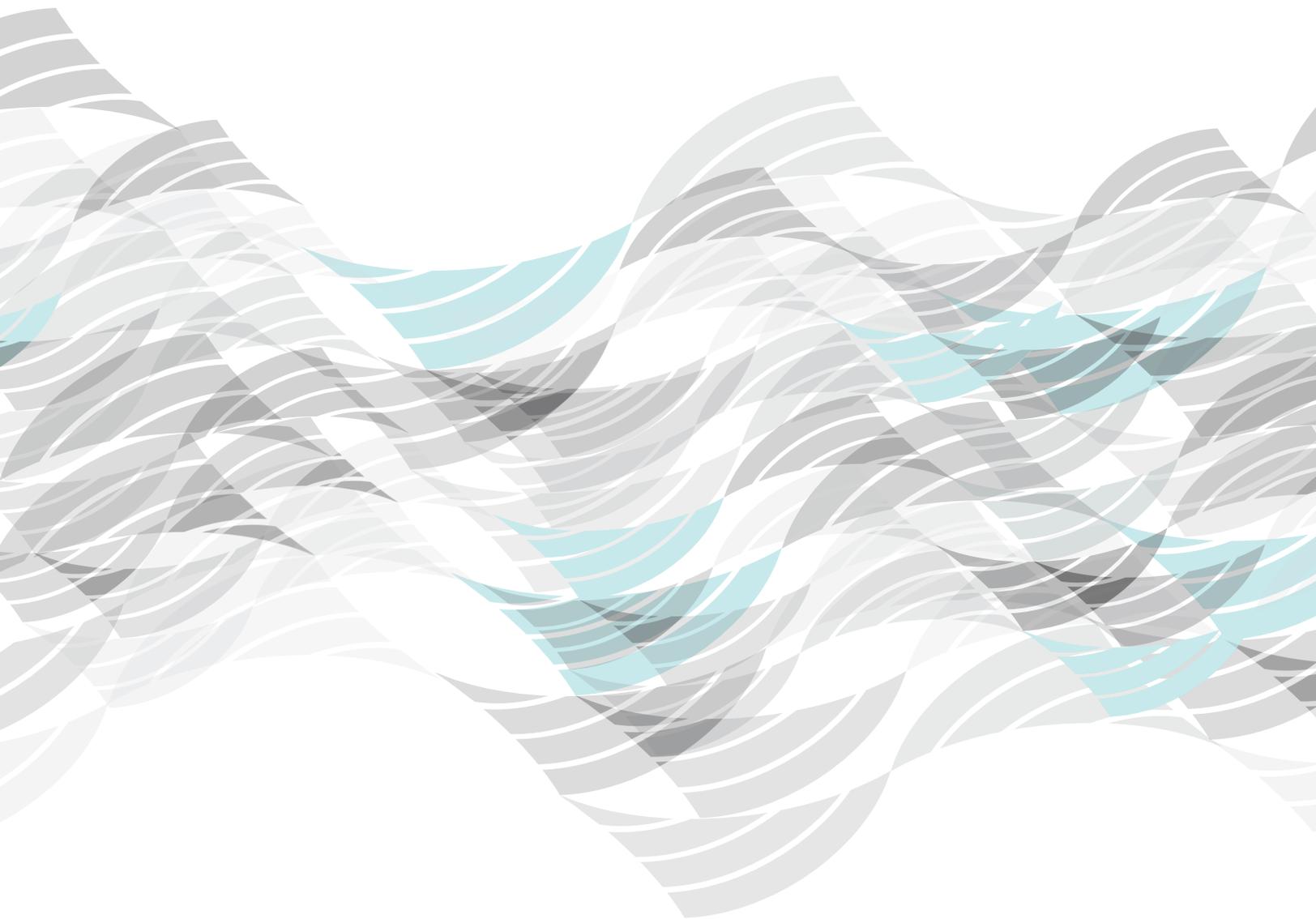


RESEARCH REPORT

Developing Leadership by Building Psychological Capital

By: Marian N. Ruderman and Cathleen Clerkin



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Introduction

Leadership development is essential to global competitiveness and corporate sustainability. Organizations often frame the development of leadership in terms of “competencies,” or the behavioral skills and areas of knowledge required by the business. However, focusing on competencies alone dismisses the key role that psychological resources play in leadership—especially in today’s fast-paced and uncertain global leadership environment.

The Center for Creative Leadership (CCL®) is currently exploring how to better address the challenges of today’s workplace by making the development of psychological resources such as resiliency and optimism an integral part of leadership training.

In this report, we share scientific findings from a recent CCL study examining conditions that cultivate psychological capital within CCL’s weeklong Leadership Development Program (LDP)®.

We found that LDP had positive effects on psychological capital, and that self-regulation techniques may boost psychological resources.

We also discuss what psychological capital is, why it’s an important leadership resource, and what leaders can do to boost their psychological capital and cultivate positive psychological resources.

Building Psychological Capital

Although *all* leadership journeys are different, one thing is universal—there will be roadblocks, interruptions, and detours. Psychological resources provide the inner energy necessary to meet the demands of a changing environment (Gorgievski & Hobfoll, 2008). CCL is exploring how to expand a leader’s psychological resources and cultivate a positive mental and emotional state called psychological capital.

Psychological capital is created from four key internal qualities—*hope, efficacy, resiliency, and optimism*. Research shows these qualities are multiplicative and synergistic; when people have all four, the positive effects are greater than the sum of each individual effect (Luthans, Youssef, & Avolio, 2006; Luthans, Avolio, Avey, & Norman, 2007). Psychological capital allows leaders to boost psychological strength in the face of change and build the resiliency needed to address difficulties effectively.

- **Efficacy** is the confidence to take on challenging tasks and to put in the effort necessary for success.
- **Resiliency** is the ability to bounce back and go further when beset by problems or adversity.
- **Hope** is the ability to persevere and redirect paths toward goals in order to succeed—a combination of willpower and way power.
- **Optimism** is making positive assessments of the future.



Psychological capital has been shown to be an important variable when it comes to workplace performance. It is associated with lower employee absenteeism, less employee cynicism and intentions to quit, higher job satisfaction and commitment, and increased positive interpersonal behaviors (Luthans et al., 2006). Employees with higher psychological capital tend to be better off emotionally than those with lesser amounts. They also are in a better position to support their employees and colleagues, which enhances interpersonal exchanges.

Psychological capital can help people sort through complex challenges, create new paradigms, and respond to changing conditions. This capacity is especially

important for leaders who set the tone and act as a model for others. A leader's ability to engage with a range of perspectives and create a climate for change is essential to a successful workplace. Moreover, psychological capital helps leaders respond effectively to the pressure, chronic demands, and responsibilities of authority.

Unlike psychological *traits* such as extraversion or cognitive *aptitudes* such as intelligence, psychological capital is a psychological *state*. Given the proper knowledge, training, and attention, leaders have the capacity to increase their psychological capital and to draw on it when faced with difficult demands.

The Study: Psychological Capital in CCL's Leadership Development Program (LDP)[®]

One of CCL's latest research initiatives incorporates relevant findings from neuroscience to psychology. The goal is to broaden the perspective of leadership development to include more holistic and innovative approaches, while fortifying the emotional, cognitive, and interpersonal resources of leaders (Ruderman, Clerkin, & Connolly, 2014).

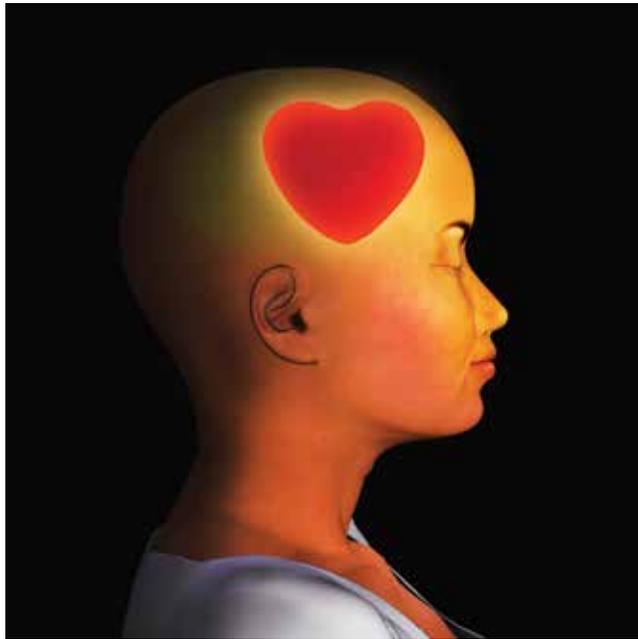
The current study explores whether psychological capital can be boosted by formal leadership development efforts, such as CCL's Leadership Development Program (LDP)[®]. LDP is intended to help mid-to-senior-level managers better deal with organizational complexity. The program also is designed to enhance leadership performance through the development of self-awareness, learning agility, communication, and influence. It also stresses the ability to think and act systematically, to be adaptable, and to persevere. A variety of techniques are used to enhance a leader's potential, such as coaching, peer support, exposure to new information, reflection, assessment-for-development, and experiential activities.

RESEARCH QUESTION 1

Is participation in the leadership development program associated with increases in psychological capital?

We believe LDP facilitates psychological capital development by giving leaders a chance to reflect on what refuels their energy resources. They are able to recalibrate both the inner resources and behaviors required to lead effectively. We also believe LDP addresses each of the four key internal qualities of psychological capital:

- LDP builds **efficacy** by providing opportunities to learn new skills and practice them in a supportive environment. This is likely to build confidence and belief in one's ability to handle tough situations in the workplace, which is critical to efficacy.
- LDP increases **optimism** by helping participants imagine new possibilities through exposure to new content and setting goals for positive changes—positivity about the future creates optimism.
- LDP gives **hope** by offering new leadership behaviors and ways to grow as a leader. Research shows people feel hopeless when they are mired in a rut and do not know how to fix negative situations. LDP offers tools leaders can use to get out of ruts and address negative conditions in a proactive way.
- LDP builds **resilience** by discussing the mind, body, and spirit. Mental, physical, and social strategies of resilience are explicitly discussed throughout the weeklong course.



RESEARCH QUESTION 2

Does the practice of coherent breathing change psychological capital levels over and above the regular LDP content?

The latest research in neuroscience suggests additional ways to increase psychological capital. For example, *self-regulation* techniques have been shown to generate psychological and physical well-being in a variety of groups. Self-regulation involves the ability to control impulses and direct one's own behavior through awareness of thoughts and emotions in the moment (McCraty, Atkinson, Lipsenthal, & Arguelles, 2009; McCraty & Zayas, 2014).

There are many tools to promote self-regulation: coherent breathing, mindfulness meditation, body-scans, yoga, etc. Research in psychophysiology shows emotion regulation can enhance attention, memory, and task performance (Bradley, McCraty, Atkinson, Tomasino, Daugherty, & Arguelles, 2010). These techniques build up the psychological reserves needed to respond to stressful situations that leaders are likely to encounter.

For leadership development purposes, we were interested in a self-regulation intervention that would be easy to learn, secular in nature, and provide feedback on how well an individual is learning the technique. Even more importantly, we wanted a tool that had been shown to help people bounce back from challenging situations. We decided to focus on a technique called *coherent breathing*. Research shows coherent breathing is effective at increasing positive outcomes; it improves health on a number of fronts (e.g. blood pressure and heart disease), as well as concentration. (See “Coherence and Coherent Breathing” textbox on page 7 for more background on coherent breathing.)

To determine whether coherent breathing could build psychological capital in leaders above and beyond our standard LDP, we added an experimental coherent breathing session to the LDP experience and compared the psychological capital accumulated across LDP experiences.



Study Design

We used two intervention groups. One group received the standard LDP, while the other received LDP with instruction on coherent breathing. A third group acted as a control and received no LDP training at all. All study participants took an assessment of psychological capital (Luthans, Avolio & Avey, 2007) on day one and again five days later.

Study Participants and Procedure

- **Group 1: Standard LDP.** Participants completed a standard five-day LDP program without any alteration. They filled out a psychological capital assessment on day one and again on day five.
- **Group 2: Coherent Breathing LDP.** Participants completed LDP programming and also received instruction in coherent breathing. A 50-minute session on the first day introduced the coherent breathing technique and technology. On the subsequent four days, the program was briefly extended to accommodate the coherent breathing content. Participants were given five minutes of practice time in class and were encouraged to use the technique on their own as well. Participants were aware CCL was testing the efficacy of coherent breathing for leadership development. They filled out a psychological capital assessment on day one and again on day five.
- **Group 3: Pre-LDP.** Control group participants were registered for LDP, but had not yet taken the program. We emailed them a link to fill out a psychological capital assessment on day one of our study and again on day five.



The Coherent Breathing Intervention: Inner Balance™

We used the *Inner Balance™* tool by HeartMath® to train people in coherent breathing. Inner Balance is a biofeedback device that consists of an earpiece sensor linked to an iPad app, which provides information about current breathing patterns and biological variables. Importantly, the Inner Balance sensor provides instant visual feedback that allows individuals to adjust their breathing patterns in order to produce higher coherence.

Coherence and Coherent Breathing

Coherence, in the case of this study, describes a highly efficient state in which the heart and brain are in synchrony; it is associated with a high degree of mental and emotional stability. Coherence involves aligning internal and external systems and processes by balancing the sympathetic and parasympathetic nervous systems (Elliot & Edmonson, 2006). Relaxation hormones are released, inhibiting the production of the stress hormone cortisol. Coherence also stimulates the vagus nerve, which is associated with both emotion regulation and alertness (Porges, 1992a).

Physiologically, coherence is calculated via heart rate variability (HRV)—the variation from heartbeat to heartbeat. Doctors consider a stable HRV pattern of predictable variability to be an important indicator of behavioral and physiological resiliency and flexibility (Porges, 1992a, 1992b). Research shows coherent breathing is one way to induce a more predictable HRV pattern (Watkins, 2014).

In practice, coherent breathing is a smooth, slow, rhythmic form of breathing, combined with a mental and emotional focus. The HeartMath method of achieving coherence involves three steps:

1. focusing attention on the part of your body near your heart
2. breathing slowly and evenly with a focus on your heart
3. recalling a positive experience or feeling that activates a genuine feeling of positivity

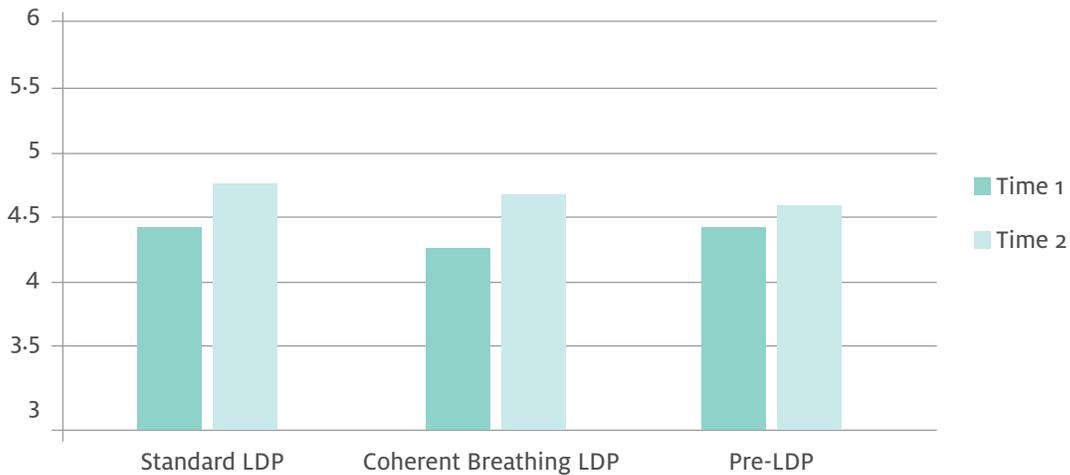
Participants in the coherent breathing condition were instructed in this technique.

Study Results

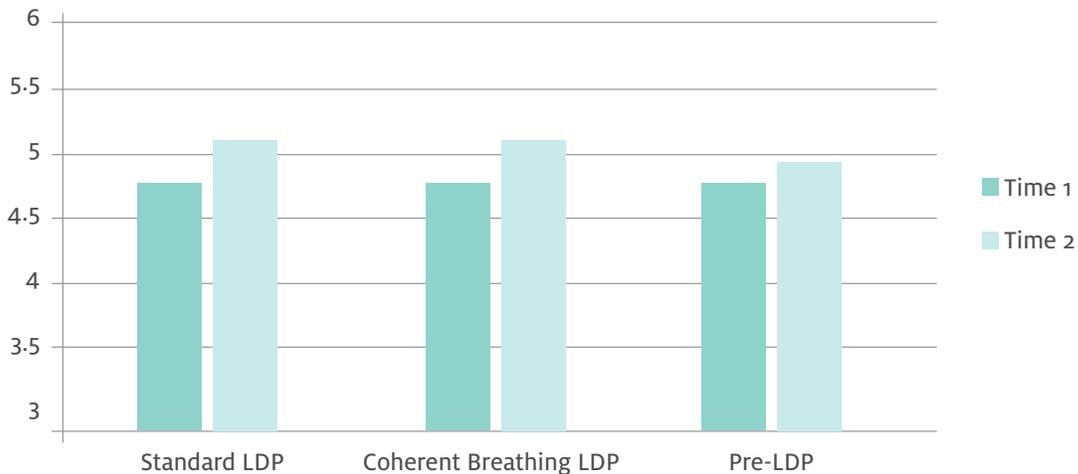
The effects of the two interventions (attending LDP and attending LDP + learning coherent breathing) were measured by comparing the pre- and post-test scores on psychological capital. Some promising trends were suggested by the data.

- LDP increases psychological capital.** The group attending the standard LDP increased all four aspects of psychological capital. The average measures of efficacy, resiliency, hope, and optimism were significantly higher at the end of LDP than at the beginning (see Figures 1–4). We also found a virtually identical increase among the coherent breathing LDP group; they too increased on all four components of psychological capital. In contrast, the pre-LDP control group—which had no intervention—did not increase in psychological capital over the course of the week. We can conclude that the psychological resources that strengthen and energize psychological capital can be increased via CCL’s Leadership Development Program.

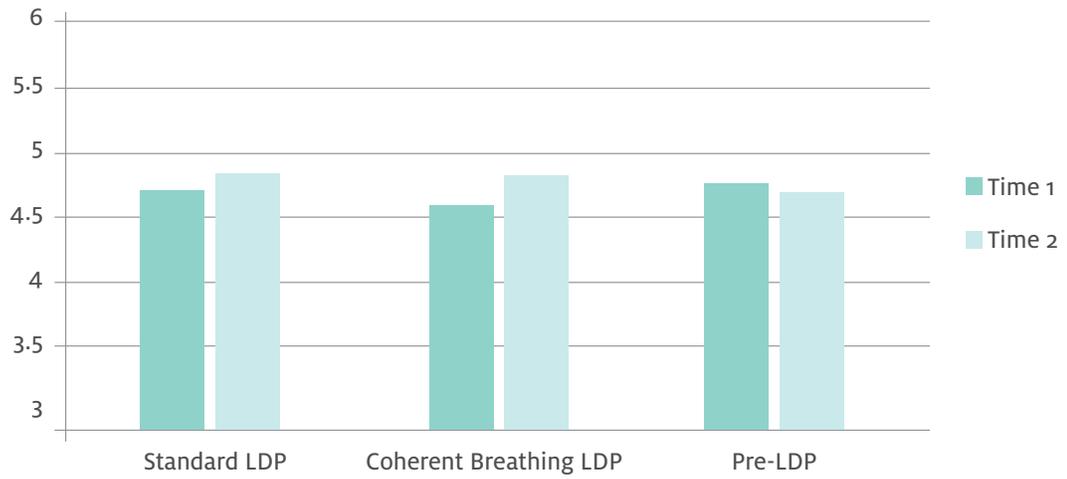
Optimism Figure 1: Results of the pre- and post-test change scores for Optimism



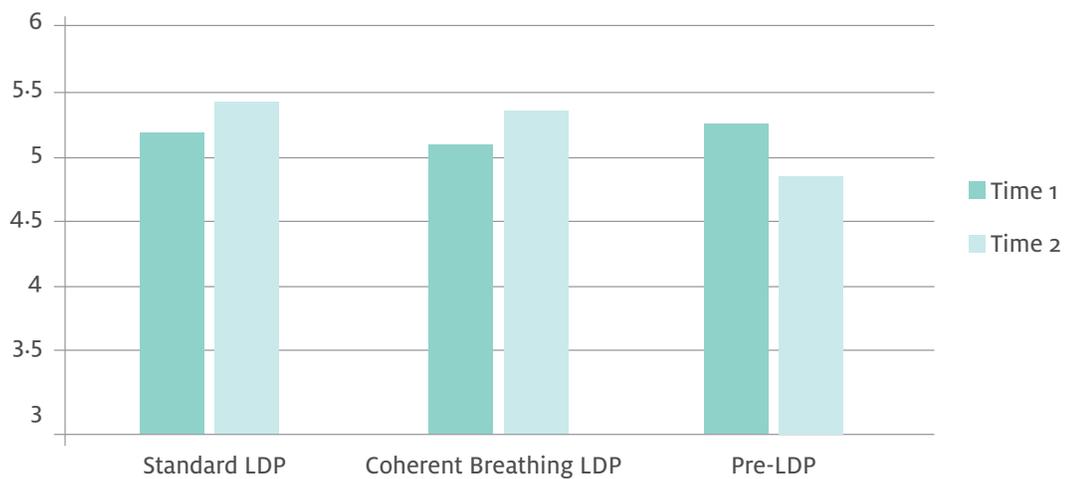
Hope Figure 2: Results of the pre- and post-test change scores for Hope



Resiliency Figure 3: Results of the pre- and post-test change scores for Resiliency

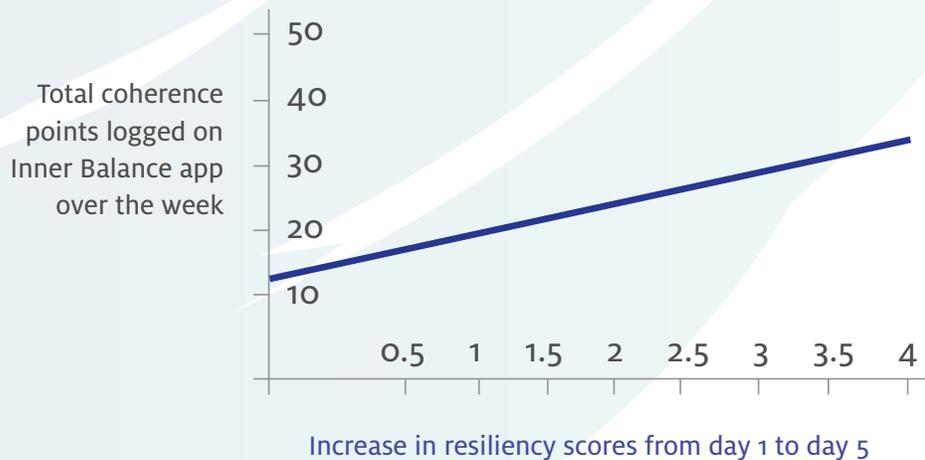


Efficacy Figure 4: Results of the pre- and post-test change scores for Efficacy



- 2. The increases in psychological capital for the coherent breathing group and the standard LDP group do not differ significantly.** All participants in both the standard LDP and coherent LDP group increased their psychological capital, and the increases tended to be of similar sizes (again, see Figures 1–4).¹
- 3. Coherent breathing may be linked to resiliency.** While the coherent breathing LDP group did not have higher psychological capital overall compared to the standard LDP group, we did find a relationship between coherent breathing and resiliency. Specifically, the time spent in a coherent state was positively associated with gains in the resiliency component of psychological capital between day one and day five (see Figure 5).

Figure 5: The relationship of coherence points to changes in resilience



4. Prior experience with mindfulness is related to psychological capital. We also asked participants how much experience they had with mindfulness practices and breathing exercises prior to participating in this study. Overall, participants who had more experience with these strategies had higher total psychological capital (PCQ) before they even entered LDP (see Figures 6 and 7). This suggests that mindfulness and breathing practices should be investigated as methods to boost psychological capital for leaders outside of and in addition to leadership training.

Figure 6: Total psychological capital by experience with mindfulness

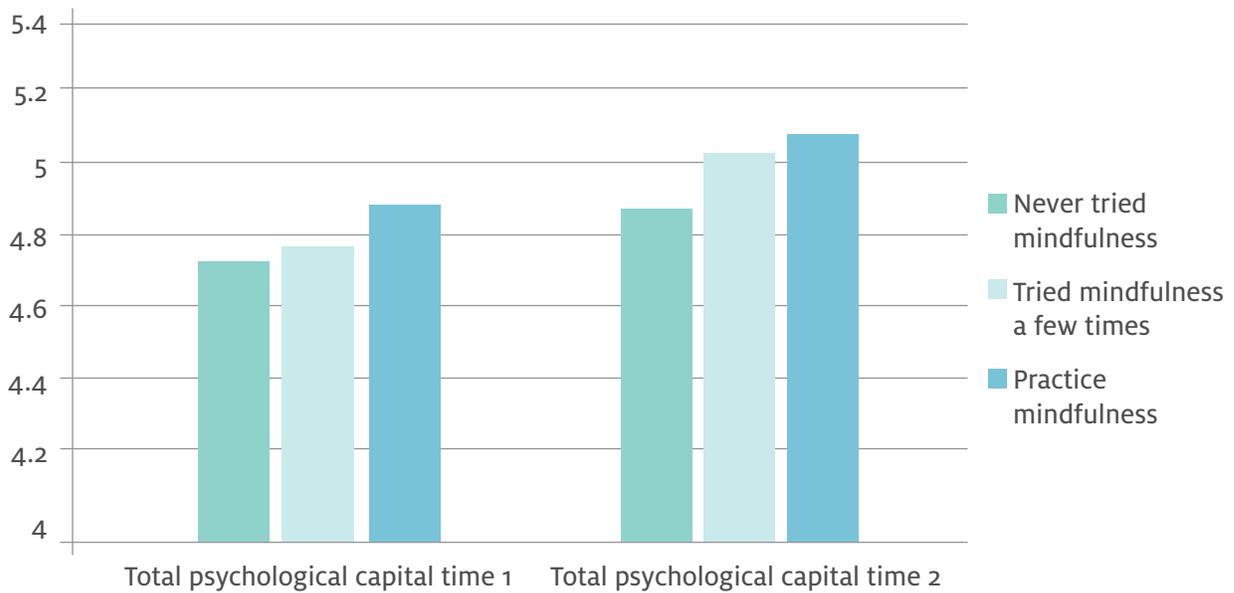
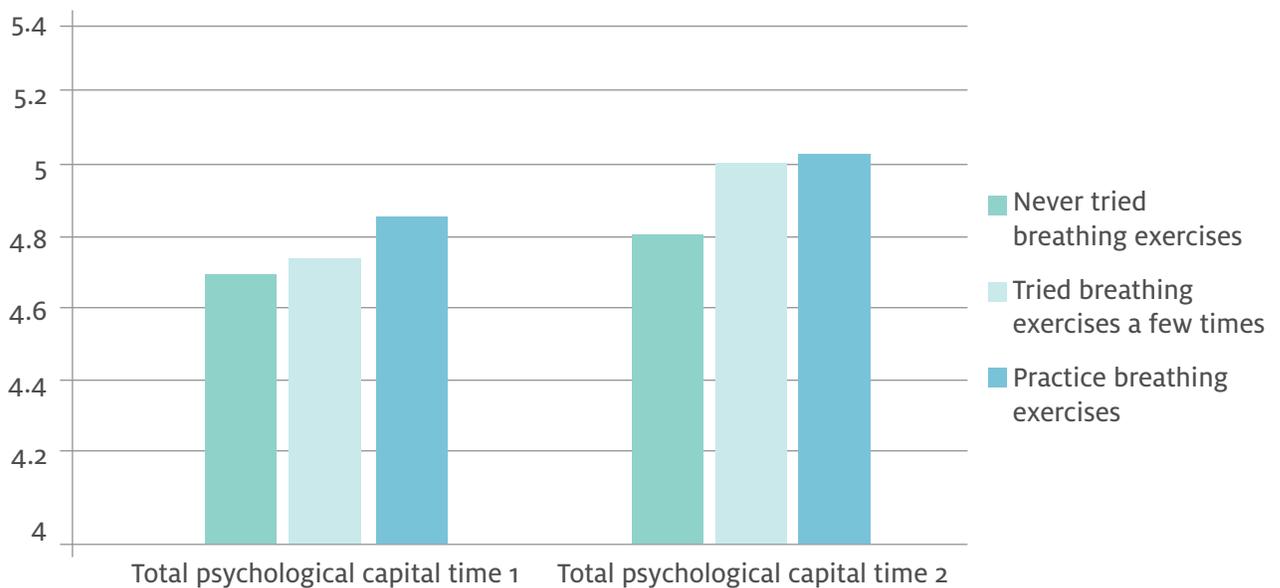


Figure 7: Total psychological capital by experience with breathing exercises





Preliminary Interpretations and Advice for Leaders

Though the results reported here are preliminary, we can say both the standard LDP and LDP plus coherent breathing left participants feeling stronger psychologically than before they came. They literally left with greater psychological resources. Additionally, it seems clear that coherent breathing alone cannot replace intensive leadership training. Rather, practices such as coherent breathing should be seen as supplemental and an adjunct to leadership training experiences.

Given that, research suggests psychological capital boosts performance by increasing the ability of the individual to respond to the emotional and cognitive demands of challenging situations (Avey, Reichard, Luthans, & Mhatre, 2011). Participants who received CCL's leadership development should feel better able to deal with challenges once they return home.

However, it is important to note that psychological capital measures a state of mind, and states can vary with events. After five days of intensive reflection, support, assessment, and challenge, it is perhaps not surprising that participants feel stronger psychologically and more able to respond to demanding environments. Our hope is that participants will regularly practice what they learned at CCL to sustain their psychological capital. Reviewing the experience and techniques learned could help to maintain or even increase psychological capital. We recommend that participants view the LDP experience as the beginning of a new approach to work life, and not as an end in itself. Leadership development is a process and not an event.

Questions Remaining and Next Steps

Further study of LDP and coherent breathing instruction is necessary to determine the question of “dosage.” In LDP, participants got only a short exposure to the coherent breathing technique. This raises questions as to whether the dose was sufficiently high to make a difference. The data from the participants who had prior mindfulness and breathing exercise experiences suggests that prolonged exposure to self-regulation tools does have a long-term effect on psychological capital. However, a five-day LDP with brief coherent breathing sessions as an add-on may not be the ideal way to test the impact on leadership development. The ability to generate psychological capital is something gradually built. HeartMath recommends considerable practice to establish a pattern of coherent breathing.

As a future research agenda, we encourage the examination of the sustainability of

increases in psychological capital beyond the classroom. Coherent breathing, meditation, and other practices may help to sustain and build psychological capital over longer periods of time. We also hope to investigate how leaders’ psychological capital may affect others. Further research should also look at psychological capital in the context of coaching, action learning, and assignment-driven learning.

The Center for Creative Leadership is also currently looking into other ways to increase well-being and psychological resources in leaders (e.g., how quality of sleep, mindfulness principles, and an understanding of physiological circuitry might accelerate leadership development.) We are working to see if an enhanced development of the “being” of leadership is the sought after catalyst to drive learning from challenging experiences.

If you would like your organization to take part in one of our studies, contact Marian Ruderman at ruderman@ccl.org.

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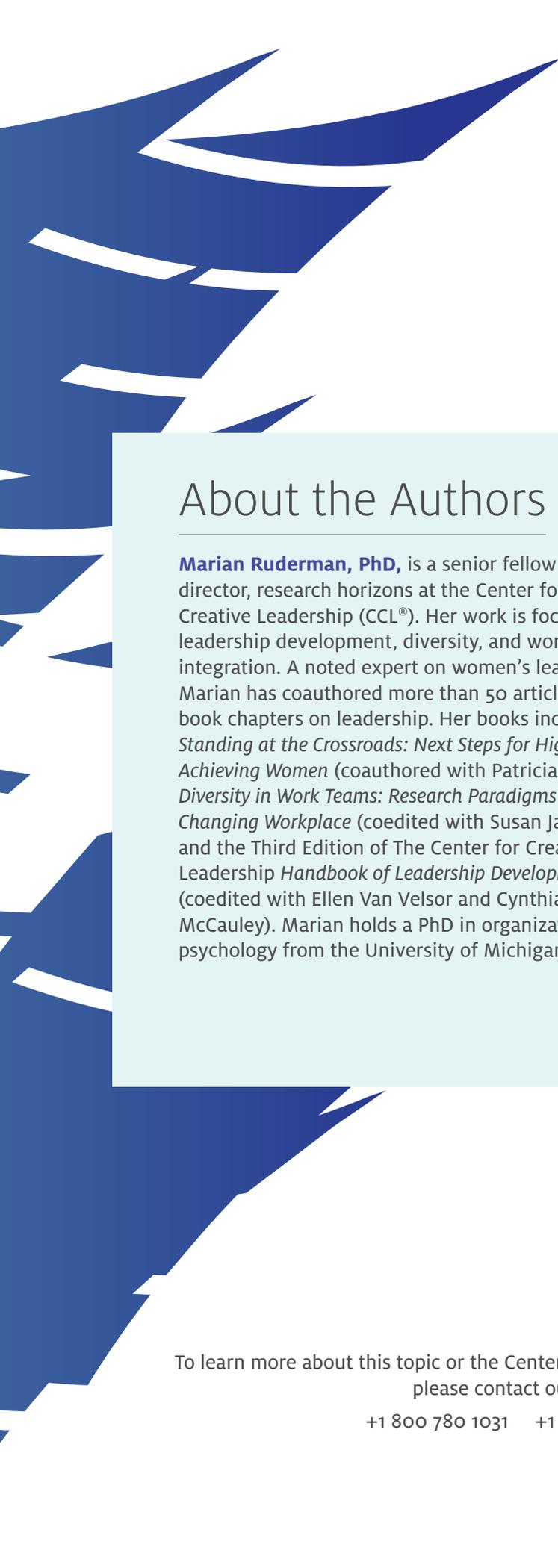
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Endnote

- ¹ Note that the finding that coherent breathing training did not have an effect on psychological capital above and beyond standard LDP training should not be extrapolated upon beyond this study. This was a preliminary experiment, and therefore, different dosages of training and/or additional group differences that were not controlled for could be affecting the results.







About the Authors

Marian Ruderman, PhD, is a senior fellow and director, research horizons at the Center for Creative Leadership (CCL[®]). Her work is focused on leadership development, diversity, and work-life integration. A noted expert on women's leadership, Marian has coauthored more than 50 articles and book chapters on leadership. Her books include *Standing at the Crossroads: Next Steps for High-Achieving Women* (coauthored with Patricia Ohlott), *Diversity in Work Teams: Research Paradigms for a Changing Workplace* (coedited with Susan Jackson), and the Third Edition of *The Center for Creative Leadership Handbook of Leadership Development* (coedited with Ellen Van Velsor and Cynthia McCauley). Marian holds a PhD in organizational psychology from the University of Michigan.

Cathleen Clerkin, PhD, is a faculty member in Research, Innovation, and Product Development at CCL. Cathleen's research interests include social identity management and diversity, creativity and innovation, and applied social cognitive neuroscience and leadership. Some of Cathleen's recent research includes perceptions of nontraditional leaders, holistic leadership development, innovation among women working in male-dominated fields, and the link between national identity and creativity. Cathleen has won multiple awards and honors for her research, including recognition from the National Science Foundation, the American Association of University Women, and the Society for the Psychological Study of Social Issues. Cathleen holds a BA in psychology from the University of California, Berkeley, and her MS and PhD degrees in psychology from the University of Michigan, Ann Arbor.

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