Interpersonal Neurobiology: How Human Relationships Shape Our Workplaces

Charlene J. Phipps, MS

Interpersonal relationships in the workplace create a powerful organizational architecture affecting employee motivation and productivity, the flow of information between the parts of the organization, and, ultimately, organizational ability to adapt and thrive amid constantly changing circumstances. Traditionally, managers have used procedures, technological systems, policies, job descriptions, and other kinds of structures and controls to achieve desired results. However, over the past few years, a growing body of evidence drawn from the experience of organizational development professionals, advances in our understanding of organizations as living systems. In addition, the new scientifically-grounded principles of interpersonal neurobiology have begun to shift our focus to relational systems as a core ingredient of organizational functioning. We are learning that in thriving, high performance organizations, authentic workplace relationships must exist side by side with processes and procedures, and moreover must be integral to all organizational systems.

This article attempts to illuminate the essential role of workplace relationships through the lens of interpersonal neurobiology (IPNB), an emerging set of principles about human relationships, grounded in human development theory and neuroscience. As an illustration, I will also discuss an organizational development project that is using the principles of IPNB to deepen the capacity of caregivers in a health care system for authentic, compassionate relationships with patients and with one another

Human Connections Make the Organizational World Go 'Round

All of us have stories about how a conflicted relationship prevented us from getting a product out on time or created a dynamic where we just couldn't get anywhere as a team. In my career as an organization development professional, I have learned firsthand about the importance of trusting, open relationships among people and among people and their organization. Like most other consultants in our field, my colleagues and I conduct employee interviews at the beginning of all our organization development projects to determine factors helping and hindering employees' productivity. Over the past two decades, we have found a surprising similarity in both large and small organizations and among the different kinds of projects we have conducted. In our initial needs assessments and interviews, communication has always risen to the top of the list of substantial factors that contribute to or detract from employees' motivation and capacity for high quality work.

When we ask employees to explain what they mean by communication, they consistently tell us four aspects are important to them: 1) receiving accurate and timely information, 2) having the sense that their ideas are heard by those who make decisions, 3) having trusting work relationships with supervisors and colleagues, and 4) getting feedback that they are contributing to the well being and mission of the organization. These responses consistently tell us that employees' ability to connect with one another to share information and decision-making, develop authentic work relationships, and provide feedback to one another about their work are essential ingredients for successful organizations

The emerging field of IPNB gives scientific support to the tangible effects of positive human connection for healthy and productive workplaces. As with all important discoveries, our new insights about relationships in organizations rest on the contributions of previous streams of knowledge. In this case, the shifting view of the processes of our physical world from mechanistic to organic,

our understanding of human systems (such as families and organizations) as complex adaptive systems, and our recognition of the importance of ongoing learning to organizational success have been essential building blocks for new ways of thinking about interpersonal relationships in organizations.

A business management revolution began to take hold in the early 1980's. The revolution grew out of discoveries in quantum physics, which overturned many aspects of Western civilizations' Newtonian worldview of a mechanistic, linear, and predictable universe. In *The Turning Point* (1982), Fritjof Capra traced the evolution of modern scientific discoveries and new ways of thinking in which "the universe is no longer seen as a machine made of a multitude of separate objects, but appears as a harmonious indivisible whole, a network of dynamic relationships that include the human and his or her consciousness in an essential way" (p. 47). Over the past three decades, pioneers such as Tom Peters, Peter Senge, Ralph Stacy, Meg Wheatley, and Dan Goleman have explored how our shifting world view affects our understanding of human systems, particularly workplace organizations, groups, and interpersonal relationships. It is interesting to look at a timeline of some of the seminal works that shaped our new understanding of effective management and leadership practices.

1988: Tom Peters, *Thriving on Chaos: Handbook for a Management Revolution*

Peters warned that the technology revolution, a continuous stream of new competitors, the changing whims of customers, and economic uncertainty were creating a "world turned upside down" for business. His solution for managing effectively in a chaotic world was widespread and vigorous participation of employees engaged in obsessive responsiveness to customers and constant innovation.

1990: Peter Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization*

Peter Senge conceived five disciplines for developing "learning organizations" (p. 14) able to thrive in a chaotic business environment. He envisioned organizations as systems "bound by invisible fabrics of interrelated actions" (p. 7). In order to thrive, these systems require employees' personal learning, self- awareness, and clarification of "mental models" underlying human assumptions and actions; a shared organizational vision among all employees; and the capacity for meaningful dialogue and connections between people.

1996: Ralph Stacey, *Complexity and Creativity in Organizations*

Stacy defined organizations as complex adaptive systems. He echoed Senge's passion for developing organizations characterized by constant learning through feedback from the environment and exchange of ideas and information among employees. One of Stacey's key insights regarding organizations is that while they are purposefully structured by organization charts, policies, and systems, there is a powerful "shadow system" (p. 116) consisting of the interactions between people. Because organizations are complex adaptive systems, it is the exchange among the interrelated elements of the system - the people - that creates the organization's capability for learning and change.

1998: Daniel Goleman, *Working with Emotional Intelligence*

In this work, Goleman applies the ideas from his original work on emotional intelligence (1996) to the workplace. The book presents findings from substantial research on corporations and government agencies, making the case that relationship skills are more important than IQ or expertise for excelling at work.

1999: Margaret Wheatley, *Leadership and the New Science*

Referring to the traditional underpinnings of mechanistic worldviews in organizational management, Wheatley lamented, "It has not been easy living in this machine universe; a mechanical world feels distinctly anti-human" (p. 31). She

pointed to the predominant structures of most modern organizations with their organizational charts, highly specified job design, and emphasis on control as evidence of the Newtonian influence on modern workplaces. She envisioned workplaces based on the new science of chaos theory and quantum physics in which relationships and cooperation are the keys to thriving, sustainable organizations.

This small but impressive sample of innovative thinkers eloquently articulates the management and leadership revolution that has occurred over the past 30 years. It has been a revolution characterized by burgeoning understanding that organizations are living systems whose essential elements are people and whose most powerful management tools are those that build human relationships essential for organizational innovation and adaptability.

Currently, twenty-five to fifty percent of the U.S. workforce is made up of employees such as managers and salespeople, whose jobs consist primarily of exchanging information with others to generate innovative ideas and make complex decisions. "What makes these workers valuable is their ability to work collaboratively, to leverage 'relationship capital,' and to improvise and improve new solutions within an environment that fosters trust and constant learning" (Beardsley, Bradford, & Johnson, 2006, p. 53).

When we step fully into the realization that interpersonal relationships really do make the organizational world go 'round, we must then ask these questions: How can we foster authentic connections between people? How do we create work relationships that allow information to flow between people, support dynamic learning for individuals and teams, and release the innate creativity of individuals and groups to develop new and better ideas and processes?

Interpersonal Neurobiology: The Missing Link

The term "interpersonal neurobiology" was coined by Daniel Siegel (Siegel, 1999). IPNB illuminates how our infant brain is developed through our earliest relationships with our caregivers and continues to develop through our connections with others during our entire lifespan. One of the theoretical precursors of IPNB was developed by John Bowlby, a child psychologist and director for a children's medical unit in London, England. Bowlby was very interested in and empathetic toward hospitalized and institutionalized children who were separated from their parents. He noticed the distinct ways children reacted when their parents left them at the medical clinic and when they returned to pick them up. While many children warmly greeted their parents, others seemed distracted or confused. Now, nearly sixty years later, Bowlby's observations and research have evolved into a well-known and respected theory of human development called attachment theory (Bretherton, 1992).

The essence of the developmental model, now bolstered by the discoveries of neuroscience, is that humans are genetically hard-wired to connect with their caregivers. Through these early relationships, each of us develops a template, operating largely below the level of conscious awareness, for how we expect relationships to be. In our earliest days, we discover whether the world is a safe, secure place or a dangerous, untrustworthy place, based on our interactions with our earliest caregivers. In a secure environment, we come to believe that when things go wrong, they will be set right, and that we are loved and accepted for who we are. When that is not the case, we may believe that

situations always go from bad to worse, and/or that who we are is not acceptable. These deep convictions then influence whom we choose to be with and how we behave in our relationships, often recreating the original relational situation. Numerous longitudinal studies have validated this developmental paradigm and furthered our understanding of the various styles of attachment, including their lifelong affects on how we relate with others, as well as how we approach and live our lives (Badenoch, 2008).

Building on Bowlby's discoveries, Mary Ainsworth developed a procedure for identifying three kinds of attachment patterns: secure, avoidant, and ambivalent (Bretherton, 1992). Following her work, Mary Main identified a fourth category, which she called disorganized because these children don't have a coherent coping strategy (Badenoch, 2008). Those with "secure attachment," have developed an internalized map that includes a sense of trust and security in the world, creating a base to reach out and explore the world, even when life situations are difficult. They trust they can manage their discomfort, and believe they are okay. If breaches in trust and authentic relationships occur, securely attached children (and adults) are more able to reach out to repair the relationships and situations. Secure attachment results from parents consistently responding to their child's signals with empathy and warmth. Speaking neurobiologically, we could say that the parents were able to provide enough accurate attunement for this child's brain to develop a pattern of integration and regulation, with few pockets of dissociated neural nets containing pain and disruption.

In avoidant attachment, one or both parents ignore or dismiss the child's signals for emotional closeness. The child develops expectations of separateness and feelings of low self-worth. Neurobiologically, these children's brains are wired to have little awareness of relational information coming from the right hemisphere, so often get focused on tasks rather than relationships, and have easier access to their left hemisphere functions – linear, logical, linguistic, and literal. In ambivalent attachment, parents vacillate between empathic responses and chaotic or hurtful behavior. The child develops a sense of mistrust, but still intensely tries to establish the closeness he or she instinctually longs for. In terms of brain wiring, the parent's dysregulated right hemisphere becomes the template for the child's developing brain, often leaving the child with a very sensitive limbic system that isn't regulated by middle prefrontal resources. Disorganization is the most severe form of insecure attachment, and is the sad outcome when children have parents who are frightened or frightening. The terror and fragmentation in the parents' brains wires terror and mental disorganization into their child's, so they develop little ability to soothe themselves (a capacity that develops when our parents soothe us) or moderate their behavior (Badenoch, 2008).

From birth through childhood, we look to our primary caregivers for attunement so that our physiology and patterns of interaction and care can be regulated. From those experiences, we develop expectations and wiring for emotional and physical well being. These foundational relationships establish the biological, behavioral, and psychological structure that carries through to our adulthood (Cozolino 2006). Human development through relationship does not stop in childhood. Our adult relationships continue to shape neural pathways affecting our internal map for how we relate with others and our implicit assumptions about life's possibilities. The good news is that as we interact with different people, our mirror neurons and resonance circuits allow us to develop an "internal community," the felt experience of different kinds of relationships, throughout our lifetime (Badenoch, 2008). As we age, unless we are overwhelmed by unresolved difficult experiences, we tend to move toward well being as we

integrate disparate aspects of our internalized maps and make sense of our past, present, and imagined future life experiences (Siegel, 2007).

Throughout our lifetimes, we affect one another both psychologically and physically. Humans have complex open "social circuitry" (Siegel, 2006) consisting of the spinal cord, brainstem, limbic area, and middle prefrontal cortex of the brain. In addition, powerful mirror neurons and resonance circuits in our brains register our observations of others. The limbic system picks up these signals and generates emotional responses that are processed by the brainstem. It is the brainstem that generates our safety response, giving us information that we will be safe or that we should fight or flee. Bodily responses such as those felt in the belly and heart move up through the neural system to the frontal cortex, which interprets and modulates our emotional balance, empathy, fear, choice making, and communication (Siegel, 2008).

The human social circuitry is "open" in that we mutually affect one another's physical and psychological processes. This is largely due to the brain's mirror neurons, which give human beings (and other primates) the propensity to mimic one another's behavior (Iacoboni, 2008). Beyond mimicry, these mirror neurons, associated with resonance circuits that amplify our inner awareness of others, also create internal representations in our brains of what others are experiencing. In other words, we experience what others feel. People connect with and affect one another in tangible ways whether or not they choose to do so or are conscious that the connection is happening. The human "open loop" system is called "interpersonal limbic regulation." It accounts for why one person can alter the hormone levels, heart rate, sleep patterns, and immune system of another (Goleman, 2002).

IPNB in the Workplace

Having open social circuitry means that our behaviors in the workplace can powerfully affect our colleagues, shape organizational culture, and impact productivity. This can be a blessing or a curse, depending on the nature of the signals we send and those we receive from others. At work, different biochemical reactions are triggered with praise than with criticism; different behaviors come into play when people have the opportunity for genuine human connection as opposed to being isolated. The chemistry of workplace interactions is tangible - the quality of our connection with one another affects our ability to share information and coordinate our tasks as well as helps or hinders our professional growth and commitment to our teams and organizations.

If we are to catalyze organizational change and improvement toward high performance and sustainability, we must begin by acknowledging the powerful psychological and physical influence we exert on one another, and then include work at the individual and interpersonal level in our plan. Relationships are not frivolous add-ons to productivity; they are the organizational pipeline through which essential information flows. Because organizations are complex adaptive systems, whose survival depends on the constant interchange of ideas and information, interactions must be as connective and integral to their work processes as the signals passed between a flock of geese in flight or a school of fish in motion.

Fortunately, we humans do have the ability for information to flow through our open social circuitry. However, the way messages are given makes all the difference for how they are received and acted upon. Siegel (2008) emphasizes that both energy and information flow between people. For example, a leader may announce the necessity for a shift in how employees interact with customers. She exudes a sense of excitement, reassures

employees they will be supported by customer training, and gives employees resources for talking about their questions and concerns. We know from research in interpersonal neurobiology that this kind of message, consistent with the caring energy that flows between attentive parents and their securely attached infant, is likely to generate positive feelings, can-do attitudes, and creative solutions for change. The same message delivered in a harsh and threatening way will most likely create employee responses similar to children who have experienced anxious attachment in their earliest relationships. Employees react to threats, lack of responsiveness to their concerns, or anxious messages from leaders by accelerating their own fear, doubt, and worry. Goleman (2002) points out that emotional cues from leaders are particularly potent: "Everyone watches the boss…his attitude affects the moods of his direct reports, and a domino effect ripples throughout the company's emotional climate" (p. 8).

"Everyone watches the boss…his attitude affects the moods of his direct reports, and a domino effect ripples throughout the company's emotional climate."

Patterns of reaction like the ones described above are constantly flowing between individuals, in workplace teams, and across whole organizational systems. IPNB principles have alerted those of us interested in developing thriving workplaces to pay special attention to how energy and information is exchanged between people. It is the quality of the human connection, the relationship quotient, that often determines if and how important changes, quality improvements, and creative adaptations are implemented. Sustained qualities of communication, such as caring or harsh, responsive or aloof, eventually evolve into organization-wide patterns, stories, and traditions defining the organizational culture. Fortunately, IPNB can provide a framework for facilitating a shift to more open, trusting, and supportive relationships at work in these ways.

Self awareness and learning: Knowledge of IPNB principles increases our understanding of how our patterns of relationship affect others. Through self awareness practices such as feedback from others, self-assessment of our communication patterns, and self-regulation practices, we can learn to communicate consistently in ways that help our workmates feel more connected, productive, and creative. This awareness and skill development can also increase our presence with and connection to our clients and customers. IPNB has given us the knowledge to articulate and learn the specific interaction skills that nurture security, creativity, and productivity at work. They are the same skill sets used by parents who encourage their children to confidently explore the world and develop expectations that they can trust and safely communicate with others.

Understanding and connecting with others: IPNB raises our awareness of how people are shaped through relationships as infants and throughout their lives. This awareness can reduce our human inclination to personalize other's behavior, and it can increase our compassion and acceptance for the whole range of ways that people interact and behave. We can learn to accurately read others' faces and body language and emotions, which in turn allows us to step back and regulate our choices for how we respond. Cozolino (2006) notes that "when we are tuned in to others, our mirror systems provide us with a visceral-emotional template of what the other is experiencing, allowing us to know another from the inside out" (p. 202).

Social awareness and engagement: IPNB can also help us understand and positively influence social dynamics. Building on our ability to accurately read others' social cues, we can tune into how people are affecting one another in their one-to-one and group interactions. We can see how emotional responses such as empathy or fear can produce a powerful field of energy in social situations. If we are consistently attuned and self-regulated, we can behave and interact in ways that can positively affect the social energy and positive outcomes in groups.

We used this framework of self awareness, understanding others, and social awareness and engagement as the learning model for a pilot project to strengthen a culture of compassionate care in a health care organization.

Applying Interpersonal Neurobiology to Organization Development

When the leaders of a health care organization invited us to facilitate them in strengthening their compassionate culture of care, we drew on the principles of IPNB to help them envision and implement the change. We began by building on their patient-centered approach and their strong belief in compassion, both with patients and with one another. From our initial needs assessment with them, we learned that while compassionate values were strong and most caregivers believed they were compassionate, there were significant differences in how they actually interacted with patients and one another.

As in almost all organizations we have worked with, the themes from our interviews with them highlighted their concern about their relationships and the flow of information with one another and their supervisors. Their comments also emphasized the importance of everyone sharing information about patients to enable them to implement their integrated care model in which caregivers form a safety net of shared information and pooled knowledge for consistent communication and treatment of patients. The importance of communication and information flow was reinforced by our research at the beginning of the project documenting the beneficial effects on patients resulting from working with doctors and caregivers who were attuned to their interaction cues, who expressed a degree of warmth in their relationships, and engaged them as partners in their health care plans.

The organization's leaders decided to begin with a pilot project involving thirty-five people from three integrated areas of the system. We were to develop the approach, guide implementation, and collect evaluation data at the end of the project. We chose an organization development approach focused on fostering individual skills and tools for compassionate relationships. The design included twelve hours of employee workshops on compassionate interaction and relationships, several individual coaching sessions with all participants, and regular interaction with a project team made up of organizational leaders who could advise us and provide linkage to executives who would make final decisions about rolling out the project to other areas. The supervisors in each of the integrated sections of health care we worked with attended the workshops with those they supervised.

In all of our sessions, we focused on the definition of compassion as a caring relationship (the heart of the learning model). Three essential and interrelated elements - caring for others, social engagement, and self-care - work together to create the patient/caregiver relationship, which is at the heart of compassionate care. The highly experiential workshops provided awareness and practice in the same kinds of interaction patterns that loving and engaged parents use with their children. The essential skills and concepts were reinforced through participant storytelling and sharing, inspirational audiovisual presentations, and experiential learning and practice. The three key goals of the workshops were 1) to provide integration of compassion in action experiences, both within individuals and between them, through participant storytelling and sharing; 2) to increase

self awareness of the specific aspects and behaviors of compassionate relationships and their healing power for patients; and 3) to provide a safe setting for self-reflection and skill-building around the specific interaction skills.

The coaching sessions paralleled and reinforced the workshop concepts. About three years ago, our company, Innovative Human Dynamics, developed a *Relationship Styles Survey* and booklet with individual and team learning tools for developing authentic relationships. We regularly use the survey and learning tools as part of our organization development projects to create a foundation for effective relationships and as a catalyst for sharing information, boosting creativity, and supporting one another during organizational change projects. The compassionate care project was our first experience in combining the coaching sessions with workshops that reinforced the interaction skills outlined in the *Relationship Styles Survey*. The coaching proved to be a powerful medium for developing our personal relationships and trust with each participant, and for individualizing learning and awareness about their patterns of interaction that helped and hindered authentic relationships with colleagues and patients.

For us, one of the joys of the project was working with a cadre of facilitators-in-training drawn from the employees at the health care agency. They participated in the workshops and coaching sessions as "super participants" intended to eventually take our place (after a phase of rigorous training) in doing the coaching and training as the pilot project is rolled out to the larger system. They were selected for their passion for compassion, the trust they had earned from colleagues as informal leaders, and at least some experience with training and coaching. Their enthusiasm for the program sustained us. In debriefs after each of the workshops, they gave insightful feedback, helped us understand organizational and cultural dynamics, and gave us tremendous personal support to sustain our efforts. The pilot project yielded tangible lessons for implementing the compassionate care project system-wide. The most telling result was that participant evaluations from the pilot project reported significant learning and application of skills in the three areas of self, other, and social awareness. Every participant recommended that the program continue in the rest of the system! A theme of the feedback from participants was that the program "put a face on compassion." Many participants shared that while they felt compassionate before the program, they learned the actual behaviors and concepts that allowed their strong feelings of compassion to be more effectively expressed.

Individual coaching for participants was an element that set this project apart from others that traditionally provide only executive coaching during organizational change projects. Every participant, from nurses and medical office assistants to doctors and managers, received one to four hours of coaching. It was interesting that those who participated in more than one coaching session found the coaching to be more valuable for their individual growth than the workshops. While they appreciated the group learning activities, they noted that coaching is where the real individual work and growth gets done. Those who participated in only one coaching session generally reported the balance between time in coaching and time in workshops was about right. About 95% of participants reported that coaching was extremely helpful for developing their ability to engage in compassionate interactions with patients and co-workers.

There was mixed feedback about having participants from integrated work units attend the workshops together. Some wished to participate

with their own familiar workmates in their units, while others believed the participation across units built bonds and understanding to strengthen integrated services to patients. One of the advantages of the integrated model is that real work issues arose during the workshops about communicating and working across organizational boundaries. A disadvantage is that there was rarely time to create lasting solutions. We are wondering if it would be worthwhile and feasible to build into the program an as-needed follow-up process, such as additional facilitated sessions to focus on cross-functional problem-solving for patient care.

Many participants, as well as the leadership group, advocated for creating additional sustainability measures for the culture change, which included weaving compassionate care indicators into performance reviews, integrating compassionate care ideas into new employee orientations, and strengthening the role and capability of supervisors and managers to coach employees daily on compassionate interactions. As part of the sustainability effort, we will advise adding a leadership and supervision component to the program that would replace the special workshops held with doctors and other practitioners in the pilot project. These sessions would include doctors, supervisors, managers, and others in positions of authority with employees. Ideally, they would be held before the employee workshops to educate and coach leaders, not only about the theory and practice of compassionate care, but also about their highly influential roles in coaching employees and modeling the practices of compassionate interaction with them.

A final note about the importance of leaders' involvement in the program. First, the spirited and visionary leadership of the person inside the organization who took the lead role in working with us to implement the project was essential to the success of the project. Her full and enthusiastic participation in the workshops and coaching provided a highly visible model for other participants, and her communication with other executives helped to resolve barriers to program excellence and implementation. Equally important, the involvement of key executives on the program's leadership team created communication links to supervisors and doctors involved in the program, provided insights for program direction and sent the message to participants that the program was important - that compassion was the highest priority! As the in-house facilitators phase in to implement the program system-wide, the ongoing involvement and enthusiasm of leaders will continue to be essential to the compassionate care initiative.

As I write this article, we are preparing to engage the organization's executive team in the final component of the pilot project - a leadership seminar that includes a theoretical perspective on interpersonal neurobiology in the workplace; participation in learning activities from each of the workshop modules experienced by the pilot project participants; sharing their insights about their individual and team relationship styles; and considering a set of principles to help them implement and sustain the compassionate care program. Here are the principles we will share with them.

- In our workplaces, as in other social aspects of our lives, people have an innate drive for human connection and a sense of belonging.

- This sense of being connected and belonging is determined by the quality of interactions between people, which, in turn, affects both psychological and physiological functioning at work, including ability to think clearly, physical energy available for work, motivation, sense of well being, and physical health.

- The human connection is the heart of compassion. Compassion involves feelings of empathy for others and is shown through interactions and relationships that result in patients and co-workers being genuinely seen, heard, and appreciated.

- Compassionate patterns of interaction, such as those characterized by caring and understanding, attunement to others' needs,

and responsiveness create a powerful field that forms the organizational culture and greatly affects the well being and health of employees and patients.

- Specific communication patterns and behaviors that create a sense of connection and belonging can be articulated and learned through skill building, sharing stories and experiences, increasing awareness of self and others, and understanding how we affect and are affected by one another in relationship.

- Key learning opportunities occur at the point of human connection, including one's connection with oneself (self awareness), connections between individuals (other awareness) and connections with teams and the organizational community (social awareness). Because of their positions as authority figures and role models, the influence of leaders' compassionate attitudes and interactions with employees, one another, and patients is greatly amplified.

As I think about our intentions for building the capacity of the facilitators and leaders to eventually implement the compassionate care program themselves, a wonderful memory keeps coming to mind about my relationship with my mother. I remember her running along beside me as I learned to ride my first bike. She held the bike steadily at first and then without me knowing it, gradually let go. When she did fully let go, I felt a surge of pride that I could do it myself and experienced the thrill of sailing down the small hill on the country road in front of our house. Years later, I did the same with my daughter. We hope our transition with this organization will be similar - that our secure and safe relationships and their confidence in their new skills will be the foundation for them reaching out to the whole organization to continue to learn and sustain an exemplary culture of compassionate care.

Charlene J. Phipps is the founder of Innovative Human Dynamics, a northwest consulting and training group that develops human capacity for high performance organizations. Her approach emphasizes self awareness and authentic communication to stimulate individual and organizational success in changing and challenging environments. Charlene is the author of an assessment and learning tool, *What's Your Relationship Style,* which is based on social intelligence and interpersonal neurobiology. She has an M.S. degree from the University of Oregon in Public Affairs, with a specialty in organization development. Her company website is www.InnovativeHumanDynamics.com.

The Mind to Lead

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., and Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27-45.

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkrantz, M., Muller, D., Santorelli, S. F., Urbanowski, F., Harrington, A., Bonus, K., and Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine, 65*(4), 564-570.

Kabat-Zinn, Jon. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*(2), 144-156.

Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being.* New York: W. W. Norton.

Siegel, D. J. (2001). Toward an interpersonal neurobiology of the developing mind: Attachement relationships, "mindsight," and neural integration. *Infant Mental health Journal, 22*, 67-94.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Adkins, A. D., Wahler, R. G., Sabaawi, M., and Singh, J. **(**2007). Individuals with mental illness can control their aggressive behavior through mindfulness training. *Behavior Modification, 31*(3), 313-328.

Interpersonal Neurobiology: How Relationships Shape our Workplaces

Badenoch, B. (2008). *Being a brain-wise therapist: A practical guide to interpersonal neurobiology*. New York: W.W. Norton & Company, Inc.

Beardsley, S., Johnson, B., Manyika, J. (2006). *Competitive advantage from better interactions*. The McKinsey Quarterly, 2, 53-63.

Bretherton, I. (1992). The origins of attachment theory. *Developmental Psychology, 28*, 759-775.

Capra, F. (1982). *The turning point*. New York: Simon & Schuster.

Cozolino, L. (2006). *The neuroscience of human relationships: Attachment and the developing social brain*. New York: W.W. Norton.

Goleman, D. (1998). *Working with emotional intelligence*. New York: Bantam Books.

Goleman, D., Boyatzis, R., McGee, A. (2002). *Primal leadership: Realizing the power of emotional intelligence*. Boston, MA: Harvard Business School Publishing.

Iacoboni, M. (2008). *Mirroring people: The new science of how we connect with others*. New York: Farrar, Straus and Giroux.

Peters, T. (1987). *Thriving on chaos: Handbook for a management revolution*. New York: Alfred A. Knopf.

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

Siegel, D. (1999). *The developing mind: How relationship and the brain interact to shape who we are.* New York: Guilford.

Siegel, D. (2006). An interpersonal neurobiology approach to psychotherapy: Awareness, mirror neurons, and neural plasticity in the development of well-being. *Psychiatric Annals, 36*(4), 247-258.

Siegel, D. (2008). *The neurobiology of we: How relationships, the mind and the brain interact to shape who we are*. U.S.A.: Mind Your Brain, Inc.

Stacey, R. (1996). *Complexity and creativity in organizations*. San Francisco: Berrett-Koehler.

Wheatley, M. (1999). *Leadership and the new science: Discovering order in a chaotic world*. San Francisco: Berrett-Koehler.

To Be or Not to Be ~ Motivated

Alfonso J., Frasch A.C. & Flugge G. (2005). Chronic stress, depression and antidepressants: Effects on gene transcription in the hippocampus. *Reviews in the Neurosciences***,** *16*(1), 43-56.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.). *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998).