

Leading with the Heart (Eyes, and Pre-frontal Cortex): An Evolutionary Argument for the Primacy of the Theory of Authentic Leadership

W. Jason Niedermeyer

George Fox University, Educational Foundations and Leadership Department

ABSTRACT

Much of contemporary leadership research has been devoted to the crystallization of authentic leadership theory. This research has concluded that authentic leaders are able to understand the intentions and emotions of themselves and others, using both to produce narrative visions of moral and optimistic futures. What has failed to be described, however, are the biological and evolutionary underpinnings of each of the identified components of authentic leadership: understanding emotions intra and interpersonally, a personal story, positive psychology, and morality. This paper uses the fields of psychology, neurology, and primatology to explain why these pillars of authentic leadership make sense in an evolutionary context. Through the process of demonstrating that humans were built by multiple levels of selection to be led authentically, it becomes evident that the challenges that face the aspiring leader require him or her to recognize the same thing that the initial scholars in the field have: authentic leadership is nothing if not developmental.

KEYWORDS

Authentic Leadership, Evolution, Communication, Optimism, Altruism,
Transformational Leadership

“WANTED- AUTHENTIC LEADERS”

When the call for authentic leaders was first issued by George (2003), it was a response to myriad corporate scandals that plagued Wall Street at the dawn of the new millennium (Klenke, 2007). That impetus for change is not unlike what is facing the world in the aftermath of this last global financial collapse, causing what some are terming “the great recession” (Leonhardt, 2009). The trouble with this call for

AUTHOR NOTE: Please direct correspondence to W. Jason Niedermeyer, 1510 Davidson St. SE, Salem, OR 97302 E-mail: wniedermeyer10@georgefox.edu

authentic leaders is authentic leadership has yet to have a fully crystallized conceptual framework for what an authentic leader looks and sounds like (Northouse, 2010). Therefore, the charge for authentic leadership scholars has been to generate a set of constructs that define the field, and significant progress has been made on this front.

Having been defined recently as “a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers [and] fostering positive self-development” (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008, p. 94), authentic leadership has had several pillars erected upon which it seems to rest. As a theory, however, it has come to be viewed, in less than a decade, through three different lenses: intrapersonally, developmentally, and interpersonally. Between the intrapersonal definition and developmental definitions there is a significant amount of overlap, where the seemingly ephemeral quality of authenticity is generated through a leader’s life story (intrapersonal) / major life events (developmental) and through positive psychology (developmental) / positive self-concept (intrapersonal). Translating these internalized qualities and events interpersonally to others, however, manifests itself in authentic leaders through adapted messages (presumably about the leader’s life story and events) and concern for others (likely due to a positive psychology and self-concept) in hopes of conveying self-awareness, morality, a balanced processing of events, and transparency in relationships (Northouse, 2010). Through this conveyance of strength of character, the leader has the opportunity to change a group’s direction and transform his or her followers, turning authentic leadership into transformational leadership (Sosik & Cameron, 2010).

This is the place where most authentic (and transformational) leadership research begins—likely because they were once grouped together (Northouse, 2010)—and researchers use the above constructs as the foundation for their analysis of corporations, bureaucracies, and other entities in an attempt to evaluate the causation behind their successes and failures (Walumbwa, Luthans, Avey, & Oke, 2011). There seems to be little in the authentic leadership literature about how self-authenticity is actually transferred interpersonally allowing for the manifestation of an individual as an authentic leader. Prior investigations also fail suggest why one must be authentic to himself in order to produce the kind of authentic actions (Terry, 1993) that served as the original theoretical underpinning of authentic leadership (Northouse, 2010). In my estimation, this oversight is a significant weakness in the literature, for researchers are in essence presenting a *correlation* between self-authenticity and leadership authenticity, not a *causation*. There seems to be, however, evolutionary explanations that address the fundamental aspects of authentic leadership, and its capacity to turn into transformational leadership. The aim of this paper is to explain not only *how* authentic leadership has justifiably gained increasing representation in the leadership literature (Walumba, et al., 2011) and became inextricably linked to transformational leadership (Sosik & Cameron, 2010), but *why* it should take its place as the most reliable of leadership paradigms.

ANCESTRAL AUTHENTICITY

When viewed from an outsider's perspective, a leader's authenticity is exhibited through relational transparency (Northouse, 2010). That transparency begins not at a conscious personal level, or even a psychological one, but at a subconscious physiological level. Like other primates, human brains possess a particular type of neural tissue called "mirror neurons" (Ferrari, Fogassi, Gallese, & Rizzolatti, 2003; Gallese, Fadiga, Fogassi & Rizzolatti, 1996). These cells are activated when an individual is *watching* what a conspecific does, producing the same neural excitation within the individual as if she were *doing* it herself (Gazzaniga, 2008). This neural stimulation means that, in many ways, one *feels* as if she is on the high-wire with the acrobat despite standing several hundred feet below, even as she rests comfortably on solid ground (De Waal, 2009).

As mentioned above, humans share this capacity with other primates, suggesting that the capacity to share experiences is adaptive to a relatively broad taxonomic base. What humans do not share with other primates, however, is their visible sclera (white of the eyes). The visible contrast produced at the interface of the sclera and iris allows humans to accurately track the gaze of others' eyes, a capacity that chimpanzees and other apes lack (Kobayashi & Kohshima, 2001). In both human infants (Tomasello, Carpenter, Call, Behne, & Moll, 2005) and adults (Calder, Lawrence, Keane, Scott, Owen, Christoffels, & Young, 2002), it has been shown that gaze following allows for the inference of intention. It has subsequently been suggested that the visible sclera was a physiological construct that facilitated heightened cooperation in humans as compared to other apes (Wilson, 2007), whose less than visible sclera facilitates deception (Jensen, Hare, Call, & Tomasello, 2006; Tomasello, et al., 2005).

For a leader, this pair of capacities is of great import. People are more likely to follow a friend (Maxwell, 2006), and part of being a friend is being able to recognize others' emotions and intentions, an ability made possible by the combination of the visible sclera and the mirror neurons (Jackson, Meltzoff, & Decety, 2005; Wicker, Keysers, Plailly, Royet, Gallese, & Rizzolatti, 2003). Once an emotional kinship has been established, a leader is then able to illustrate his or her intentions and decisions. Because there is a significant expense in terms of time and energy in attempting to make decisions, in many species—including humans—there is a predilection to follow those that have already made a decision (Hirshleifer, 1995; Ridley, 1996), allowing leaders to guide followers in a desired direction. In non-human primates, this possibility is increased when a leader is considered to have prestige (Horner, Proctor, Bonnie, Whiten & de Waal, 2010). Though readily identifiable based on followership, determining how prestige has been attained can be difficult, for it is most often conferred upon individuals of high social status. Such status is frequently achieved based on dominance during agonistic interactions, but unlike one who is considered *dominant*, the *prestigious* individual is one from whom no threat is felt (Henrich & Gil-White, 2001).

In many ways, what is considered prestige in non-human primates mimics the intangible quality in humans called charisma, which is often bestowed upon prestigious individuals in positions of dominance who inspire others to follow (Young, 2012). Initial scholarship attributed to charismatic leaders supernatural

abilities (Weber, 1947), but more recently it has been established that charisma derives from a capacity to not only perpetuate a sense of moral values but to model and articulate them (House, 1976). Among the most concise of ways for a charismatic individual to demonstrate the sense of morality that is essential to both authentic and transformational leadership (Northouse, 2010) is through the art of story-telling (Gazzaniga, 2008).

THE TRANSFORMATIVE POWER OF THE NARRATIVE

With story-telling known to be a reliable indicator of intellectual capacity and creativity (Miller, 2000), charismatic leaders often turn to laying out their visions in an almost narrative and lyrical form (Sparrowe, 2005). The rationale for this method again has a psychological, neurological, and evolutionary basis. In most species, the primary function of vocalization is social interaction (Seyfarth & Cheney, 2010); for humans it becomes even more specific, focusing on social *regulation* (Calude & Pagel, 2011). As a leader, directed social regulation is often the goal (Wilson, Van Vugt, & O’Gorman, 2008), but the selected oratorical methodology is critical to achieving followers. By invoking story telling as opposed to directives, a leader accesses his listeners’ imagination and empathy. Through the elicitation of empathy, the teller is, as elucidated above, creating a connection to the audience—though this time, rather than doing so through the sensory inputs that directly activate mirror neurons, he is doing so by accessing each individual person’s imagination (Gazzaniga, 2008). Because most people’s stories are about themselves, and if not, they are grounded in people and not abstractions like statistics, listeners are more likely to effectively process and analyze what it is they are hearing (Cosmides & Tooby, 2004). This capacity likely exists because human brains are not built to make decisions based numerical probabilities (Gazzaniga, 2008)—rather, the human brain is a frequency dependent learner, set-up to effectively process experiences as opposed to numbers (Perkins, Farady, & Bushey, 1991).

While charisma can be exuded through the oration of a gifted narrator, in order for their vision to inspire followers, a leader’s vision must possess optimism, morality, and reality. As one of the foundations of the theory of authentic leadership (Northouse, 2010), optimism has significant neurological benefits to a leader. When a person is primed in an optimistic manner prior to answering a series of questions, she shows activity in the medial prefrontal cortex (Bengtsson, Lau, & Passingham, 2009), a part of brain associated with learning (Sharot, 2011). The same activity is not demonstrated in people who were primed negatively (Bengtsson et al., 2009). This enhanced ability to learn when one is optimistic makes a person more likely to take a selective risk, one that utilizes all available information, as opposed to pessimists, who will either resort to low expectations and little risk taking or enhanced risk-taking because it has been decided that one’s actions do not matter in life’s ultimate outcome (Sharot, 2011). By operating from a position of optimism, a person also activates problem-solving processes that were evolved to close the gap between the perfect world in one’s imagination and his reality (Geary, 2005). Such cognitive activity aligns with Terry’s (1993) approach to authentic actions, whereby the leader exhibits a clarity of thought that allows him to effectively respond to situations as they arise (Northouse, 2010).

The presence of mirror neurons further elucidates the necessity of optimism in a leader, because in addition to having them activated in a manner that allows for the inference of intention and the elicitation of empathy, they allow people to take on the mood of others (Neumann & Strack, 2000). For the leader, this means that one's mood is contagious, suggesting that by projecting a positive affect, followers are more likely to be positive themselves, producing a culture of reflective learners and selective risk takers. That optimism can be an emotional contagion may explain why among all evaluated factors for participants in Teach for America, the single greatest predictor of student success was the *teacher's* general sense of happiness (Duckworth, Quinn, & Seligman, 2009). Because teaching, at least when evaluated in non-humans, is a cooperative pursuit between the knowledgeable and the naïve (Thornton & Raihani, 2008), the proximity of interaction between teachers and students would certainly be enough to perpetuate optimism in a species where the caring relationship is what creates a sense of morality (Noddings, 2003), the second aspect of authentic leadership (Northouse, 2010).

THE MORAL(S) OF THE STORY

A message of morality has proved to be one of the most powerful tools for unifying people throughout history (Ridley, 1996; Wilson, 2007; Wilson, Van Vugt, & O'Gorman, 2008), so it makes sense that strong morals are the impetus behind the passion and purpose exhibited by authentic and transformational leaders (Northouse, 2010). The trouble with this identification, however, comes in generating an operational definition of morality. Some philosophers have argued it is derivative of the abstract (ethics), while others have said it is the product of the concrete (individual relationships) (Noddings, 2003).

Evolutionary biologists, by contrast, typically focus on the difference between selfish (amoral) and selfless (moral) behaviors. Though there is a long history of evolutionary biologists focusing on the pressure placed on individuals or groups to act in a moral fashion in isolation, the emergence of multi-level selection theory allows for the generation of a more holistic picture of morality (Wilson & Wilson, 2007). Because acting in a moral (i.e. selfless) fashion is often to the immediate detriment of the actor, it has repeatedly been linked by theorists to altruism (Wilson, Van Vugt, & O'Gorman, 2008). At the level of the individual, in both humans and non-humans the explanation for such behavior is that in communal living species, one is likely to receive a form of delayed reciprocity for his or her actions in the form of a returned favor (Ridley, 1996). At the level of the family, acts of altruism may be a product of inclusive fitness via kin selection (Hamilton, 1964; Smith, 1964). At the level of the group, societies whose members behave morally and engage in altruism are likely to out-compete those groups whose individuals behave selfishly (Wilson, 2003). It seems that at every level there is at least some push towards the kind of moral behavior expected of authentic leaders, though it is in a constant struggle against the intense pressure to act selfishly that exists at the individual level (Sober & Wilson, 1999).

When viewed through the lens of multi-level selection theory, one cultural construct has proven particularly good at producing moral behavior and stifling selfish inclinations: religion (Wilson 2003, 2007). This recognition may explain why

Klenke (2007) includes a spiritual component in her definition of authentic leadership. The inclusion of spirituality provides a sense of meaning and purpose for the leader that is transmitted to the group. It also provides what Wilson (2007) considers the “upward” purpose of religion, a proximate explanation for a behavior that may seem irrational, but serves a hyper-rational “outward” purpose: it brings groups of people together. Therefore, while the stories that are used for the upward component of religion may be inauthentic, the ultimate explanation for their existence gives the religion itself authenticity in the minds of disciples (Wilson, 2003).

For an individual leader, however, followers require the third component of authentic leadership: reality, in the form of leaders having encountered critical life events. Such experiences, particularly those that are negative, promise to help a leader reflect, producing greater insights into not only her own life but into the challenges presented to others because of those similar experiences (Shamir & Eilam, 2005). The existence of this kind of adversity early in a leader’s life is considered to be one of the precursors for wisdom (Hall, 2010), and it illustrates to followers that their leader possesses one of the key psychological capacities in authentic leaders, resilience (Luthans & Avolio, 2003).

Using the optimism and a clearly delineated set of morals produced by his life’s story, a leader can unify a group (Wilson, 2003), thereby increasing morale. The increase in morale will produce people more willing to sacrifice for the good of the group (Wilson, 2007), a critical component for some theorists of authentic leadership (Klenke, 2007) and a reality for some of history’s most notable transformational leaders (e.g. Ghandi, Martin Luther King Jr., John F. Kennedy) (Northouse, 2010). Such sacrifices are often at the foundation of religions, most notably Christianity through the crucifixion of Jesus. Self-sacrifice, however, has been observed outside the realm of not only religion, but of humans, whereby individuals of various species of apes have been seen to exhibit the truest form of altruism, the willingness to risk their lives for the sake of another (De Waal, 2009). The roots of authentic and transformational leadership may therefore be as basal as any of the other derived psychological capacities humans share with other apes.

“TO THINE OWN SELF BE TRUE”

Unfortunately, these evolutionary foundations also suggest there exists in humans the same of predisposition *against* the cooperation necessary for groups to form and leaders to authentically emerge as there is in other primates. With ancestral linkage to polygamous hierarchical species (Ridley, 1993), both human and non-human primate leaders are often concerned with maintaining their dominance and frequently do so through exhibitions of power (De Waal, 2005). This worry can cause a leader’s thoughts to be consumed by his or her own weaknesses and how to overcome or, at the very least, mask them (Rath & Conchie, 2005).

Such pressures imposed on the level of the individual produce behaviors that are at odds with the expectation of relational transparency that serves as the foundation for authentic leadership. They also serve to erode the final psychological capacity observed in both authentic and transformational leaders: confidence (Northouse, 2010). Fortunately, this is an area on which both leadership theorists

and evolutionary anthropologists agree: when individuals choose to trade on their strengths as opposed to focusing on their weaknesses, the groups they lead thrive. This has been shown to be true in both the modern era, where corporations that utilize the practices of strengths based leadership grow (Rath & Conchie, 2005) and in our distant past, whereby the global proliferation of humans was spurred when individuals and societies ceased attempting to be entirely self contained and instead began to specialize and trade (Ridley, 2010).

It should come as no surprise to either camp then that, as would have been predicted by multi-level selection theory, there is a physiological barrier to the selfish instinct that naturally exists in leaders (Wilson, Van Vugt, & O’Gorman, 2008). When an individual attempts to mask his own behaviors, his capacity to monitor the emotions of others is significantly impaired (Gross, 2002), meaning that in order to elicit the kind of cooperation necessary for leadership, a person must exhibit confidence not only in his abilities but also in the transparency of his own emotions. Therefore, by maintaining self-transparency, the authentic leader can establish *relational* transparency, fostering the kind of relationship with followers that allows him to guide the group towards its desired outcomes (Wilson, Van Vugt, & O’Gorman, 2008). It seems that, for aspiring authentic leaders, Shakespeare’s words for the soon to be king of Denmark may just be the perfect advice: “This above all: to thine own self be true” (*Hamlet*, Act 1, Scene 3, 78).

BECOMING AN AUTHENTIC LEADER

As one of the most egalitarian of social species, acquiring a position of leadership for humans is more challenging than for other primates (Wilson, Van Vugt, & O’Gorman, 2008). Rather than simply requiring an ascension to dominance, providing a position from which a leader can simply coerce individuals into followership—human leaders must achieve “buy in” (Northouse, 2010). As illustrated above, this requires authenticity, both inter and intrapersonally. Countless generations of people faced with multiple levels of selective pressure have honed physiological adaptations that allow for both the transmission and interpretation of authentic messages between leaders and followers. These adaptations have produced a natural inclination for relational transparency, even in the face of pressure to act selfishly. The desire to be led in an authentic fashion has also produced cultural constructs like religions that not only serve to stifle selfish impulses, but facilitate transformative moral action within a society, producing a heightened sense of self-confidence for believers (Wilson, 2007), a capacity expected of authentic leaders (Northouse, 2010).

Still, though it seems as if humans were built through the processes of evolution to be led authentically, in no way does this suggest becoming an authentic leader is easy. The confidence and subsequent optimism it produces is typically the product of having hard won success, the kind that comes from resilience in the face of difficult circumstances. This echoes how it has long been thought wisdom is acquired (Hall, 2010), and it is by the wise that people most often want to be led. It is therefore not surprising that the ability to process situations in a balanced fashion is an expectation of authentic leaders, for it is thought that, more so than in other theories of leadership, it is the leader’s job is to adjust his actions based on both the

situation and the needs of his followers. As a leader's experience grows, so will his confidence and processing ability, which explains why Luthans and Avolio (2003), have maintained that authentic leadership, as much as it is both inter and intrapersonal, is *developmental*. So, though an aspiring leader may be able to lean on his (and his followers') natural proclivity for authenticity, he's still going to need the same thing as the scholars of leadership to truly grasp what it means to be an authentic leader: the knowledge gained from experience.

REFERENCES

- Bengtsson, S.L., Lau, H.C., & Passingham, R.E. (2009). Motivation to do well enhances responses to errors and self-monitoring. *Cerebral Cortex* 14, 797-804.
- Calder, A.J., Lawrence, A.D. Keane, J., Scott, S.K., Owen, A.M., Christoffels, I., & Young, A.W. (2002). Reading the mind from eye gaze. *Neuropsychologia* 40, 1129-1138.
- Calude, A. S., & Pagel, M. (2011). How do we use language? Shared patterns in the frequency of word use across 17 world languages. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366(1567), 1101-1107.
- Cosmides, L. & Tooby, J. (2004). Social exchange: The evolutionary design of a neurocognitive system. In Gazzaniga, M. (ed.), *Cognitive Neurosciences*, vol. 3 (pp. 1295-1308). Cambridge, MA: MIT Press.
- De Waal, F. (2005). *Our inner ape: A leading primatologist explains why we are who we are*. New York, NY: Riverhead Books.
- De Waal, F. (2009). *The age of empathy: Nature's lessons for a kinder society*. New York, NY: Harmony Books.
- Duckworth, A.L., Quinn, P.D., & Seligman, M.E.P. (2009). Positive predictors of teacher effectiveness. *The Journal of Positive Psychology*, 4(6), 540-547.
- Ferrari P.F., Fogassi, L., Gallese, V., & Rizzolatti, G. (2003). Mirror neurons responding to the observation of ingestive and communicative mouth actions in the monkey ventral premotor cortex. *European Journal of Neuroscience* 17, 1703-1714.
- Gallese, V., Fadiga, L., Fogassi, L., & Rizzolatti, G. (1996). Action recognition in the premotor cortex. *Brain*, 119(2), 593.
- Gazzaniga, M. (2008). *Human: The science behind what makes your brain unique*. New York, NY: Ecco Press.
- Geary, D. C. (2005). *The origin of mind: Evolution of brain, cognition, and general intelligence*: American Psychological Association.
- George, B. (2003). *Authentic leadership: Rediscovering the secrets to creating lasting value*. San Francisco, CA: Jossey-Bass.
- Gross, J.J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychopathology* 39, 281-91.
- Hall, S. S. (2010). *Wisdom: from philosophy to neuroscience*. New York: Knopf.
- Hamilton, W. D. (1964). The genetical evolution of social behaviour. II. *Journal of theoretical biology*, 7(1), 17-52.

- Henrich, J., & Gil-White, F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and human behavior*, 22(3), 165-196.
- Hirshleifer, D. (1995). The blind leading the blind: Social influence, fads and informational cascades. In Ierulli, K. & Tommasi, M. (eds.) *The new economics of behaviour*, (pp. 188-215). Cambridge, UK: Cambridge University Press.
- Horner, V., Proctor, D., Bonnie, K. E., Whiten, A., & de Waal, F. B. M. (2010). Prestige affects cultural learning in chimpanzees. *Plos One*, 5(5), e10625.
- House, R.J. (1976). A 1976 theory of charismatic leadership. In Hunt, J.G. & Larson, L.L. (eds.) *Leadership: The cutting edge* (pp. 189-207). Carbondale, IL: Southern Illinois Press.
- Jackson, P.L., Meltzoff, A.N., & Decety, J. (2005). How do we perceive the pain of others? A window into the neural process involved in empathy. *Neuroimage* 24, 771-79.
- Jensen, K., Hare, B., Call, J., & Tomasello, M. (2006). What's in it for me? Self-regard precludes altruism and spite in chimpanzees. *Proceedings of the Royal Society of London* 273, 1013-21.
- Kernis, M.H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry* 14, 1-26.
- Klenke, K. (2007). Authentic leadership: A self, leader, and spiritual identity perspective. *International Journal of Leadership Studies* 3(1), 68-97.
- Kobayashi, H. & Kohshima, D. (2001). Unique morphology of the human eye and its adaptive meaning: Comparative studies on the external morphology of the primate eye. *Journal of Human Evolution* 40, 419-435.
- Leonhardt, D. (2009, May 3). After the great recession. *The New York Times*, Sunday Times Magazine.
- Levenson, R.W. & Ruef, A.M. (1992). Empathy: A physiological substrate. *Journal of Personality and Social Psychology* 663, 234-46.
- Luthans, F. & Avolio, B.J. (2003). Authentic leadership development. In Cameron, K.S., Dutton, E., & Quinn, R.E. (eds.) *Positive organizational scholarship* (pp.241-258). San Francisco, CA: Berrett-Koehler.
- Maxwell, J.C. (2006). *The 360 degree leader*. Dallas, TX: Thomas Nelson.
- Miller, G. (2000). *The mating mind: How sexual choice shaped the evolution of human nature*. New York, NY: Doubleday.
- Neumann, R. & Strack, F. (2000). Mood contagion: The automatic transfer of mood between persons. *Journal of Personality and Social Psychology* 79, 211-23.
- Noddings, N. (2003). *Caring: A feminine approach to ethics & moral education*. Berkeley, CA: University of California Press.
- Perkins, D.N., Farady, M., & Bushey, B. (1991). Everyday reasoning and the roots of intelligence. In Voss, J.F., Perkins, D.N., & Segal, J.W. (eds.), *Informal Reasoning and Education*, (pp. 83-105). Hillsdale, NJ: Lawrence Erlbaum.
- Rath, T. & Conchie, B. (2008). *Strengths based leadership: Great leaders, teams, and why people follow*. New York, NY: Gallup Press.
- Ridley, M. (1993). *The red queen: Sex and the evolution of human nature*. New York, NY: Penguin Group.

- Ridley, M. (1996). *The origins of virtue: Human instincts and the evolution of cooperation*. New York, NY: Penguin Group.
- Ridley, M. (2010). *The rational optimist: How prosperity evolves*. New York: HarperCollins Publishing.
- Seyfarth, R. M., & Cheney, D. L. (2010). Production, usage, and comprehension in animal vocalizations. *Brain and language*, 115(1), 92-100.
- Shakespeare, W., Greenblatt, S., Cohen, W., Howard, J. E., Maus, K. E., & Gurr, A. (1997). *The Norton Shakespeare: based on the Oxford edition*. New York: WW Norton.
- Shamir, B. & Eilam, G. (2005). "What's your story?": A life-stories approach to authentic leadership development. *Leadership Quarterly* 16, 395-417.
- Sharot, T. (2011). *The optimism bias: A tour of the irrationally positive brain*. New York, NY: Random House.
- Smith, J. M. (1964). Group selection and kin selection. *Nature*, 201, 1145-1147.
- Sober, E., & Wilson, D. S. (1999). *Unto others: The evolution and psychology of unselfish behavior*. Boston: Harvard University Press.
- Sparrowe, R.T. (2005). Authentic leadership and the narrative self. *The Leadership Quarterly* 16, 419-439.
- Terry, R.W. (1993). *Authentic leadership: Courage in action*. San Francisco, CA: Jossey-Bass.
- Thornton, A., & Raihani, N. J. (2008). The evolution of teaching. *Animal Behaviour*, 75(6), 1823-1836.
- Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and sharing intentions: The origins of cultural cognition. *Behavioral and Brain Sciences* 28, 675-735.
- Walumbwa, F.O., Avolio, B.J., Gardner, W.L., Wernsing, T.S., & Peterson, S.J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management* 34(1), 89-126.
- Walumbwa, F.O., Luthans, F., Avey, J.B., & Oke, A. (2011). Authentically leading groups: The mediating role of collective psychological capital and trust. *Journal of Organizational Behavior* 32, 4-24.
- Weber, M. (1947). *The theory of social and economic organizations* (Parsons, T., trans.). New York, NY: Free Press.
- Wicker, B., Keysers, C., Plailly, J., Royet, J.P., Gallese, V., & Rizzolatti, G. (2003). Both of us disgusted in *my* insula: The common neural basis of seeing and feeling disgust. *Neuron* 400, 655-64.
- Wilson, D.S. (2003). *Darwin's cathedral: Evolution, religion, and the nature of society*. Chicago, IL: The University of Chicago Press.
- Wilson, D.S. (2007). *Evolution for everyone: How Darwin's theory can change the way we think about our lives*. New York, NY: Bantam Dell.
- Wilson, D. S., Van Vugt, M., & O'Gorman, R. (2008). Multilevel Selection Theory and Major Evolutionary Transitions Implications for Psychological Science. *Current Directions in Psychological Science*, 17(1), 6-9.
- Wilson, D. S., & Wilson, E. O. (2007). Rethinking the theoretical foundation of sociobiology. *The Quarterly Review of Biology*, 82(4), 327-348.
- Young, E. (2012). How to win fans and influence people. *New Scientist*, 214(2870), 38-41.

** Submitted March 7, 2012; Revision submission July 10, 2012; Second Revision submitted September 15, 2012; Accepted November 15, 2012**