Ethical Leadership as a Balance between Opposing Neural Networks*

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Abstract

In this article we explore the implications of opposing domains theory for developing ethical leaders. Opposing domains theory highlights a neurological tension between analytical and socio-emotional reasoning. Specifically, when we engage in analytical reasoning (the Task Positive Network), we suppress our ability to engage in socio-emotional reasoning (the Default Mode Network) and vice versa. In this article we bring together the domains of neuroscience, psychology, and ethics, to inform our theorizing around ethical leadership. We propose that a key issue for ethical leadership is achieving a healthy balance between analytical and socio-emotional reasoning. We argue that organizational culture often encourages too heavy a reliance on non-emotional forms of reasoning to arrive at moral judgments (i.e. the TPN). As a result, leaders run the risk of suppressing their ability to pay attention to the human side of moral dilemmas and, in doing so, dehumanize colleagues, particularly subordinates, and clients.

Introduction

Traditionally, ethical leadership is defined as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relations, and the promotion of such conduct to followers through two-way communication, reinforcement, and or decision-making" (Brown et al., 2005: 120). In the most basic terms, ethical leadership occurs when leaders do the right thing and encourage those they lead to do the same. Empirical research in this domain largely focuses on the relationship between ethical leadership and various performance outcomes including follower satisfaction with the leader and perceived leader effectiveness (Brown et al., 2005); willingness to exert extra effort (Dirks & Ferrin, 2002; Konovsky & Pugh, 1994; Podsakoff, MacKenzie, Paine, & Bachrach, 2000); moral reasoning in work groups (Dukerich, Nichols, Elm, & Vollrath, 1990); organizational citizenship behavior and work place deviance (Resick, Hargis, Shao, & Dust, 2013); and follower helping and courtesy (Kalshoven, Den Hartog, & De Hoogh, 2013).

Far less research has focused on understanding the antecedents of ethical leadership, however, the field seems to be moving slowly in this direction. Recent literature notes the need for a more in-depth understanding of the underlying cognitive mechanisms that facilitate ethical leadership: "behavioral ethics research has long been grounded in an individual-level cognitive perspective, however more fundamental approaches are emerging. One of the most fascinating and rapidly growing of these approaches involves studies that explore the neurological mechanics of ethical decision-making" (Treviño, Weaver, & Reynolds, 2006, p. 977).

In this article, we address this need to look further into the qualities required for ethical leadership by taking a particularly relevant neurobiological theory – the theory of

opposing domains – and considering its implications for ethical leadership. The core premise of opposing domains theory that is of interest to us is an antagonistic relationship between analytical and socio emotional reasoning (Jack et al., 2012); a point that we will discuss in detail later. Understanding the neurological mechanisms of ethical leadership promises to allow us to make progress on a number of pressing questions in our field, such as whether some individuals are predisposed toward ethical leadership (Brown et al., 2005), how best to select and train ethical leaders (Waldman, Balthazard, & Peterson, 2011b), and how to develop ethical leaders through ethical training incorporated in undergraduate, graduate and on the job management education.

The proximate cause of all human behavior, aside from reflexes mediated by the peripheral nervous system, is the brain. In other words, all intentional actions originate in the brain. We may therefore strive to understand a large degree of human thought and behavior in terms of the interaction between inter-individual processes, intra-individual neural processes and the environment at large. The interaction between these three components presents effectively limitless potential implications of neuroscience research for organizational research (Healy & Hodgkinson, 2014). Organizational theory can be used to inform, predict, and explain neurological findings. Likewise, neurological findings can augment organizational theorizing and findings. In this article we focus on the latter. Specifically, we use a neurological finding – opposing domains theory – to inform organizational theorizing in the domain of ethical leadership. No one theory can hope to address all aspects of ethical behavior in the workplace. However, we aim to show that opposing domains theory has surprisingly broad implications, in particular for the development of ethical leadership. The larger goal of this article is to serve as an example of evidence based ethics. This approach to ethics is modeled on medicine, where

basic research guides the creation of interventions designed to target the underlying mechanisms of disease (Sackett, et al., 1996). Similarly, our goal here is to use theory-driven and empirically validated basic research, into the underlying mechanisms of ethical thought and decision making, to guide an educational development process designed to increase ethical behavior in the workplace.

The key insight upon which opposing domains theory is built is that our evolved neural architecture places constraints on cognition. More specifically, our neural architecture requires us to switch between two fundamentally different information processing modes, which support different yet complementary ways of understanding the world. The claim that our neural architecture imposes this constraint on cognition is supported by converging evidence from many different types of neuroscience research, including studies examining task related activation and deactivations (e.g. Buckner et al., Jack et al, 2012), the brain at rest (i.e. engaged in spontaneous cognition rather than a proscribed task e.g. Fox et al, 2005, Jack et al, 2012), neural modeling (Honey et al., 2009) and meta-analysis (Van Overwalle, 2011; Goel, 2007; Schilbac et al., 2008). Opposing domains theory brings this neuroscience research together with research in psychology and the social sciences, including work on dual process accounts of cognition (Kahneman, 2003; Evans, 1984; Evans, 2003; Evans & Stanovich, 2013).

Our central claim and the key message that emerges from the work reviewed here is the need for leaders to actively work on achieving a dynamic balance between the perspectives offered by two opposing networks in the human brain. When this balancing act is accomplished, true ethical leadership is given an opportunity to emerge. However, when an individual privileges one perspective over the other, shows poor judgment in deploying these different perspectives, or attempts to blend the two perspectives in a way

that breaches neurobiological constraints, then ethical failure become inevitable with time.

This article begins with a brief high-level overview of the organizational neuroscience and leadership domain, both in terms of the content areas that have been examined and consideration of how best to integrate neuroscience into our work. We then move to introduce the opposing domains framework and contrast this with Greene's passion versus reason model and traditional dual process theory. Our discussion then moves to ethical leadership more specifically, and how opposing domains can extend our current understanding of the cognitive processes that facility or hinder ethical leadership. We also consider the role of organizational culture in facilitating ethical cognition and behavior. We conclude with a consideration of how we can use our current knowledge to build evidence-based ethical training and development programs.

Organizational Neuroscience and Leadership

In the last 5-10 years neuroscience has been used to examine a wide range of organizational phenomenon including emotions (Ashkanasy, 2003), ethical decision making (Reynolds, 2006), intuition (Dane & Pratt, 2007), organizational justice (Beugré, 2009; Dulebohn, Conlon, Sarinopoulos, Davison, & McNamara, 2009), coaching and mentoring (Jack et al., 2013), and team composition (Woolley et al., 2007). Arguably, the field of leadership is leading the way in the adoption of neuro-scientific methods, both in terms of using neuroscience to build our current understanding of leadership related issues and in the discussion of how best to incorporate neuroscience into the current research conversation. Within the leadership domain, scholars have used neuroscience to broaden our understanding of leader self complexity (Hannah et al.,

2013); identifying transformational leaders (Balthazard, Waldman, Thatcher, & Hannah, 2012); the impact of different leadership styles (Boyatzis et al., 2012); the importance of a shared identity in inspiring followers (Molenberghs et al., 2015); and the connection between leader and follower (Fairhurst, Janata, & Keller, 2014). Along with empirical studies that address leadership directly, there is also a growing body of conceptual articles that are using neuroscience findings to strengthen leadership theory (e.g. Waldman, Balthazard, & Peterson, 2011a; Boyatzis, Rochford, & Jack, 2014; Lord, Hannah, & Jennings, 2011).

In parallel to the increasing use of neuro-scientific methods, there has been an on-going conversation regarding how best to incorporate neuroscience into the organizational domain (Becker & Cropanzano, 2010; Becker, Cropanzano, & Sanfey, 2011; Ashkanasy, Becker & Waldman, 2014; Healy & Hodgkinson, 2014; Senior, Lee, & Butler, 2011); including the establishment of methodological (Waldman, Balthazard, & Peterson, 2011a; Ashkanasy, Becker & Waldman, 2014) and ethical (Lindebaum & Raftopoulou, 2015; Cropanzano & Becker, 2013; Lindebaum, 2012) standards for doing so. Just as with any methodological approach, it is important that authors and users understand the assumptions, limitations, and appropriate uses of their chosen approach. Together, these articles provide a useful set of guidelines, considerations, and foundations for authors and users of neuro-scientific research as its use in the organizational sciences continues to grow.

One foundational framework of relevance to this article is the distinction between the resting brain and the active brain proposed by Waldman and colleagues (Waldman, Balthazard, & Peterson, 2011a). Waldman and colleagues point out that when studying the brain, we can make an analogy to the trait-state distinction commonly discussed in

behavioral research. Specifically, the brain can be studied 'at rest', which reflects enduring brain activity akin to a 'trait'. The impact of the 'at rest' (enduring) brain on behavior is referred to as 'Model 1'. We can also study the brain in an active state – that is, when it is responding to a stimulus or engaged in an instructed task. Waldman and colleagues refer to this as 'Model 2'. Model 2 can be though of as understanding the impact of a momentary 'state'.

Waldman and colleagues' distinction between Model 1 and Model 2 is useful. While the evidence is not yet conclusive, it very likely has validity. This is corroborated, for instance, by the increasing emphasis on resting state connectivity to identify neural signatures of enduring traits such as mental disorders and personality characteristics related to mental disorders (Buckner, Andrews-Hanna, & Schacter, 2008; Van Essen et al., 2012). At the same time, some caveats concerning Waldman's two models should be mentioned, since there is also evidence of interaction between traits and the resting brain on the one hand, and state related changes and the active brain on the other hand. First, the task performed immediately before a period of rest has been shown to influence subsequent resting brain activity in direct relation to the activity produced during the task period (Pyka et al., 2009). Second, relatively brief training, which recruits specific brain regions, has been shown to induce changes in resting connectivity patterns observed days later which is specific to the previously actively engaged regions (Lewis, et al., 2009). Third, and in the opposite direction, it is beyond question that individual traits reliably influence the magnitude of task-related activations. Indeed, the existence of this phenomenon has never been questioned in the literature even despite a notable and heated controversy concerning the methodology for reliably identifying specific relationships between traits and activation in localized brain regions (Spunt, Meyer, & Lieberman,

2015; Meyer, Taylor, & Lieberman, 2015).

It is important to note that in this article we are concerned with a neurobiological phenomenon that is evident both in the resting brain (Model 1), and in the active brain (Model 2), and, importantly, we are interested in the interaction between the two models. In relation to Waldman et al.'s Model 1, this neurobiological constraint is present to some degree in the resting brain of all individuals, yet variations in its strength have been shown to relate to individual differences (Buckner, Andrews-Hanna, & Schacter, 2008; Greicius et al., 2007; Greicius, 2008).

In relation to Waldman et al.'s Model 2, the constraint is also evident in task related activity, for many but not all tasks. However, interactions between Waldman et al's two models are also highly significant for the thesis we advance here. Hence, it is important to note: (i) the effect in the active brain is known to be associated with individual differences or traits (Buckner, Andrews-Hanna, & Schacter, 2008; Lian et al., 2006), and (ii) that training can modify the effect in the resting brain (Brewer et al., 2011; Hasenkamo & Barsalou, 2012; Jang et al., 2011). These points are significant because our approach is guided by the view that effective ethical leaders are created through sustained development, which we believe gradually alters neural processing both at rest and in response to specific tasks. Our goal here is to use neuroscience to better inform this development process.

Opposing Domains Theory

Opposing domains theory is concerned with two specific neural networks[1] –

[1] A neural network consists of a group of distinct brain regions that (1) tend to be consistently activated by a class of cognitive tasks (Duncan & Owen, 2000; Corbetta, et al., 1998;); or (2) demonstrate strong

known for historical reasons as the Task Positive Network (TPN) and the Default Mode Network (DMN). More specifically, we focus on the antagonistic relationship between these two networks, which, as discussed above, is evident both at rest (Model 1 in Waldman et al., 2011a) and in response to stimuli (Model 2 in Waldman et al., 2011a). This antagonistic relationship poses a fundamental constraint on cognition.

The TPN is comprised of parts of the dorsal attention system (Fox et al, 2005), the frontoparietal control network (Vincent et. al., 2008), and the ventral attention network (Fox et al., 2006, Kubit & Jack, 2013). This network is activated by wide variety of non-social tasks including those involving focused attention, working memory, language, logical reasoning, mathematical reasoning, and causal/mechanical reasoning (Duncan & Owen, 2000; Fox et al., 2005; Owen, McMillan, Laird, & Bullmore, 2005; Shulman et al.,1997; Van Overwalle, 2011). Jack and colleagues (Robbins & Jack, 2005; Jack & Robbins, 2011; Jack et al, 2012; Jack, Dawson & Norr, 2013) identify the physical stance, i.e. thinking about physical aspects of the world – sometimes called 'inituitive physics', as a cognitive set associated with pure activation of the TPN. This characterization has since been extended based on the basis of meta-analysis of numerous functional imaging studies to identify the TPN network with a broader variety of analytic-empirical-critical reasoning tasks (Jack et al, 2014).

In contrast, the Default Mode Network (DMN) is comprised primarily of the medial prefrontal cortex (MPFC), the medial parietial cortex (MPC), posterior cingulate cortex (PCC), and the right tempero-parietal junction (rTPJ) (Buckner, Andrews-Hanna, & Schachter, 2008; Raichle, 2010; Horn et al., 2013; Broyd et al., 2009). The DMN has

positive resting state connectivity with each other (Van Dijk, et al., 2010;; Vincent,et al., 2008; Yeo, et al., 2011); and/or (3) are consistently deactivated (i.e. less active than when the participant is at rest) by a class of cognitive tasks (Shulman, et al, 1997).

been traditionally thought of as the network that is most active at rest, hence the 'default' label. However, recent work in cognitive neuroscience has shown that these brain regions are also consistently and robustly activated above resting levels when individuals engage in tasks that involve sustained engagement in social narratives (Iacoboni et al, 2005; Jack et al., 2012; Meyer, Taylor, & Lieberman, 2015; Hyatt, Calhoun, Pearlson, & Assaf, 2015).

A broad label for the types of reasoning supported by the DMN is 'social, emotional and synthetic' reasoning. Specifically, the DMN plays a central role in emotional self-awareness (Ochsner et al., 2005; Schilbach, Eickhoff, Rotarska-Jagiela, Fink & Vogeley, 2008), social cognition (Jack et al., 2012; Mars, et al., 2012; Schilbach et. al., 2008), and relevant to this article, ethical decision making (Bzdok, et al., 2012; Jack, Robbins, Friedman, & Meyers, 2014; Koenigs, et al., 2007). It is also strongly linked to creativity, being open to new ideas, and insight problem solving (Subramaniam, Kounios, Parrish, & Jung-Beeman, 2009; Takeuchi et al., 2011). Jack and colleagues (Robbins & Jack, 2005; Jack & Robbins, 2011; Jack et al, 2012; Jack, Dawson & Norr, 2013) identify pure engagement of the DMN with the phenomenal stance, i.e. thinking about experiences and perspectives of others and feelings of moral concern. However, as with the TPN, this characterization was later extended on the basis of meta-analysis of numerous functional imaging studies to identify the DMN network with a broader variety of social, emotional, self-related and ethical thinking (Jack et al., 2014).

Relationship between TPN and DMN

It is generally accepted in the cognitive neuroscience literature that the Default

Mode Network (DMN) and the Task Positive Network (TPN) are anti-correlated[2] both during the resting state (Waldman's Model 1) and during the performance of tasks (Waldman's Model 2) (Greicius, Krasnow, Reiss & Menon, 2003; Fransson, 2005; Fox et al., 2005; Golland, et al., 2007; Tian et al., 2007; Buckner, Andrews-Hanna, & Schacter, 2008; Jack et al., 2012). In other words, greater neural activity in the TPN[3], which may occur either spontaneously in the resting state or as an induced 'activation' in response to a task or stimulus, is associated with reduced activity in the DMN, often below baseline levels (i.e. the DMN becomes less active than the average level of activity observed when the participant is at rest). Conversely, activation of the DMN also automatically suppresses the TPN[4]. When one network goes up, the other goes down, so to speak. When we consider the functional roles of the respective networks (e.g. through meta-analysis of a broad range of studies, and through specific hypothesis-driven tests), the cognitive significance of this neural relationship becomes apparent: engagement in analytical forms of reasoning suppresses the ability to engage in socio-emotional reasoning, and vice versa.

Dual Process Theory

A major focus of recent work in moral neuroscience has been to examine the

[2] The term 'anti-correlated' refers to a negative correlation in activity between the networks i.e. when one is active the other tends to be less active, as compared to average activity at rest. For further clarification please see Fox et al. (2009)

[3] As indexed by either fMRI or PET, the only common methods commonly available which can provide a relatively unbiased estimate of neural activity across the entire brain.

[4] Some caveats should be mentioned about this suppressive relationship: (i) it does not appear to be mediated by direct inhibitory connections between the networks, and (ii) it is not absolute, i.e. the two networks can both be active both at rest and during the performance of some tasks. The suppressive relationship between the two networks is nonetheless a highly robust emergent feature of the network connectivity of the brain (Buckner, Andrews-Hanna, & Schacter, 2008). The significance of co-activation of the two networks is discussed in detail later in the manuscript.

tension between two broad and distinct ethical perspectives. On the one hand, we may employ a utilitarian calculus, which seeks to maximize the overall outcome for all those affected by an action or decision; on the other hand, we may follow a deontological approach to ethics, such as the principle of humanity, which dictates that actions that clearly violate the rights of others are not permissible, regardless of the outcome. There is broad agreement in the literature that different brain networks and distinct individual difference factors support these different choice. Specifically, activation of the TPN and the individual's tendency to engage in analytical-critical reasoning, are associated with unemotional utilitarian thinking (Greene et al, 2001; 2004; Paxton, Bruni, & Greene, 2013). In contrast, activation of DMN regions and the individual's tendency to feel empathetic concern encourages privileging of the principle of humanity or another deontological ethical stance, which can lead, for example, to the refusal to engage in acts of indiscriminate killing (French & Jack, 2015).

Greene (2001) interpreted these findings by adopting a model borrowed from psychological dual processing accounts – Dual Process Theory. Greene's Dual Process Theory contrasts primitive, emotion-driven and automatic processes (Type I processing) with deliberative reasoning (Type II processing). Theses two types of processing have also been labeled as 'thinking fast' (Type I processing) and 'thinking slow' (Type II processing) (Kahneman, 2003). In other words, Greene viewed the activation of the DMN as Type I processing, and thus sees deontological ethical reasoning as a primitive and automatic response, whereas (similar to us) he views TPN activation as reflecting a person engaging in analytical reasoning. Greene thus takes a privileged view of utilitarian ethical reasoning as reflecting a deliberative and reasoned response (Type 2).

However, opposing domains theory notes that processing accomplished by the

DMN and by the TPN may, in both cases, be either low effort and relatively automatic, or high effort and non-automatic. Critically, high levels of activation in the TPN or DMN are associated with deactivations of the opposing network, indicating that both types of processing can be demanding of cognitive resources. Opposing domains theory shows that it is not accurate to characterize the DMN as being primitive, emotion-driven, and automatic (Jack et al., 2104) and thus challenges the traditional view (already viewed with skepticism by most ethicists) that moral dilemmas present a fundamental tension between reason (detached from emotion) and passion (emotion driven) (Greene, 2001; 2007; 2012). Further, opposing domains theory provides a neurological basis that supports other work in moral psychology (e.g. Haidt, 2001), which undermines the presumption that 'correct' moral judgment is a result of analytical reasoning alone. Rather, Jack et al (2014) suggest that the fundamental tension in moral dilemmas (and in cognition more generally) is that between two types of reasoning: analytical reasoning that recruits the TPN and socio-emotional reasoning that recruits the DMN.

The Instrumental Stance

A common response to opposing domains theory and supporting evidence it is to wonder whether there is really a barrier to thinking in these two ways at the same time or if it is possible to co-activate the two networks. The answer is yes, it is possible to activate both networks simultaneously. Research findings indicate that co-activation most reliably occurs when participants are in states that are neither purely analytic nor purely empathetic. The best established examples are: (i) when participants performing a demanding non-social (i.e. analytic) task are mind-wandering and/or making errors (Fassbender et al., 2009; Weissman et al., 2006); (ii) when participants briefly break from

their current cognitive set to either reorient attention (Kubit & Jack, 2013) or achieve creative insight into a problem (Takeuchi, 2011; Beaty et al., 2014); (iii) when participants are engaged in a highly artificial social task that is specifically designed to have a very high analytic load (i.e. a social working memory task, (Iacoboni et al., 2005) or (iv) engaged in a type of social reasoning that is instrumental and lacking in genuine empathy (Bagozzi et al., 2013). The last of these categories is the most relevant to ethical leadership, since it involves a type of naturally occurring social cognition, rather than a highly artificial social task or a deviation from focused engagement on an analytic task.

Jack and colleagues (Robbins & Jack, 2005; Jack & Robbins, 2011; Jack et al, 2012; Jack, Dawson & Norr, 2013) identified the cognitive stance associated with co-activation of the two networks in the context of social stimuli/tasks as the 'Instrumental' stance[5] (top right quadrant in Figure 1). While the instrumental stance allows us to minimally appreciate the internal mental states of others, it is goal-oriented in nature i.e. the instrumental stance is used to predict and/or manipulate the behavior of others. Jack, Dawson & Norr (2013) show the instrumental stance (i.e. activation of both DMN and TPN) is associated with animalistic dehumanizing and feelings of disgust, i.e. an attitude towards others that is known from prior psychological research to involve a reduced appreciation of others' experiential point of view and a reduced sense of moral concern for them.

[5] Following work characterizing this stance by the philosopher Daniel Dennett, we originally labeled it the 'intentional stance'. We are now adopting a different label because the 'Intentional' stance is often used and understood in the literature in a manner which extends beyond Dennett's initial characterization and conflates it with the 'Phenomenal' stance. As Robbins & Jack (2005) explain, the distinction between these two aspects of social cognition is most poignantly illustrated by comparing individuals with social processing deficits characteristic of Autism, e.g. poor performance on theory of mind tasks, on the one hand, and individuals with the primary personality characteristic of Psychopathy, namely callous affect or lack of empathic concern, on the other hand. Psychopathic individuals often evidence excellent theory of mind ability, however their social behavior is instrumental in nature (i.e. they use their social skills to predict and manipulate others for their own benefit).

Corroborating the view that coactivation of the DMN and TPN is associated with anti-social cognition, greater activation of TPN regions in response to social stimuli has been found in individuals who are more prone to Machiavellian thinking (Bagozzi, Verbeeke, Dietvorst, Belschak, Van den Berg & Rietdijk, 2013); and meta-analytic work shows that activation of TPN regions is the most reliable signature of deceptive, as opposed to truthful, communication (Christ et al., 2009). Hence, there is good reason to suppose that adopting the instrumental stance (i.e. engaging both DMN and also TPN), as opposed to the phenomenal stance (i.e. engaging DMN and suppressing TPN), is more likely to enable unethical social affective processes, such as dehumanization, deception and Machiavellian thinking. This has clear implications for ethical leadership, since these cognitive processes are strongly associated with unethical decisions and behavior.

These findings support our central contention, that while leaders need to recruit both analytical (TPN) and socio-emotional (DMN) reasoning to arrive at moral or ethical decisions, in general they cannot do this both simultaneously and effectively. This follows because co-activation of the TPN and DMN is associated with (i) poor focus and/or performance when engaged in demanding analytic tasks, and (ii) unethical thinking in social contexts. Hence, following Waldman's Model 1, co-activation of the TPN and DMN is often characteristic of ineffective performance. In addition, following Waldman's model 2, there is compelling evidence that a tendency to co-activate the TPN and DMN during the resting state (i.e. reduced anti-correlations between the networks) is associated with a variety of mental disorders (Buckner et al., 2008; Van Essen et al., 2012) and sleep deprivation (De Havas et al., 2012). In contrast, more robust anti-correlations between the networks are associated with higher IQ (Anticevic et al., 2012) and with focused meditation (Brewer et al., 2011; Hasenkamo & Barsalou, 2012; Jang et

al., 2011).

Important caveats to the rule that it is better to keep activation of TPN and DMN networks distinct derive from recognition of the importance of (a) creative and insight problem solving, and (b) the occasional need to engage in 'politics',i.e. more instrumental social thinking. With regard to the former (a), it has been shown that highly creative individuals show reduced anti-correlations between these networks (Takeuchi et al., 2012). This signature is also seen in the relatives of individuals diagnosed with schizophrenia (Liang et al., 2006), and may explain the long observed pattern of concordance between extraordinary creativity and serious mental illness seen in both individuals and families (Kyaga, Lichtenstein, Boman, Hultman, Långström, & Landén, 2011). Hence, our view is that it is generally important to keep activation of the networks distinct to maintain healthy and effective function, because a tendency towards co-activation is most generally associated with ineffective performance and mental instability. The adoption of cognitive stances that involve co-activation of the networks is also an important tool, but one which should be used sparingly to avoid training the brain into an unstable and unhealthy pattern of thinking.

Defining Ethical Leadership

In order to approach ethical leadership in a manner that can encompass these insights, we need to start with a broader and more sensitive definition. First, a good definition must recognize that different perspectives can guide ethical decision making. Second, the emphasis placed by Brown's definition on "normatively appropriate conduct" appears problematic. If true ethical leadership always emphasized compliance with normative rules, then activities such as civil disobedience and the civil rights

movement would be judged unethical. While it is clearly important to emphasize social stability and obedience to the law, it is no less important to recognize that the principle of humanity can trump those concerns[6]. Justice is far more important than compliance. Less dramatic examples are exceedingly common in the workplace, where bureaucratic structures and procedures often proliferate for the purposes of streamlining the everyday running of an organization. Shahinpoor and Matt (2007) refer to this as a 'bureaucratic ethics' and warn that pressure to conform to that which is regarded as acceptable conduct "can potentially harm the organization itself" (p.42), and silencing an ethically motived dissenter risks "ignoring the very individual who may save leaders from their own mistakes" (p.42). While a certain degree of order is required in organizational life, ethical leadership requires leaders to be open to breaking, circumventing, or changing the rules in order to provide a humane response and/or creative solution in the face of changing or exceptional circumstances.

Taking into account the concerns outlined above, we define ethical leadership as *the ability to consider issues from multiple stances, including what is fair and just, balance alternate perspectives against each other, and encourage followers to do likewise through the demonstration of consistent inspiring conduct, reinforcement of fair and just decisions, and humane interpersonal relations.*

From Neuroscience to Social Science

The dominant framework used to guide research on ethical decision making in the

[6] The tension between self-interest and concern for other is discussed in detail by Jones, Felps, and Bigley (2007). While not directly relevant to our article, Jones and colleagues provided a comprehensive overview of this tension across multiple literature themes including its ethical underpinnings and the impact of organizational culture on moral decision making in organizations.

social sciences is Rest's four-component model (Rest, 1986; Rest, Narvaez, Bebeau, & Thoma, 1999). Rest and colleagues' model postulates four key components of moral decision-making: moral awareness, moral judgment, moral motivation, and moral behavior. Of most relevance to this article are the first two stages of Rest's model: moral awareness and moral judgment[7]. Moral awareness is defined as the ability of a leader to recognize that a "moral issue exists in a situation or that a moral principle or standard is relevant to the circumstances" (Treviño et al., 2006). In other words, a morally aware leader can see the ethical dimensions of a decision, such as how actions being considered will affect the well-being of others both inside and outside the leader's organization and where the interests of those potentially affected may conflict.

Moral awareness is often considered as an individual difference variable measured by 'ethical sensitivity' – one's ability to recognize the ethical content embedded in a particular decision (Sparks & Hunt, 1998; Reynolds, 2006). However, some researchers have argued that moral awareness is also a function of the content of the issue itself and the broader context (Jones, 1991; Butterfield, Treviño, & Weaver, 2000). In this stream of research, a measure of moral intensity is used to capture contextual variance. Moral intensity takes into account the characteristics of the issue itself including the magnitude of the consequences, concentration of effect, probability of effect, temporal immediacy, social consensus, and proximity. Note that some of these characteristics parallel the considerations taken into account by Jeremy Bentham's

[7] While this framework provides a useful way to parse the literature for our purposes, we note that we are skeptical that a clear distinction can be made between moral motivation and the other components of the model. In other models (e.g. Robbins & Jack, 2006) moral motivation was closely tied to moral awareness. This has been well borne out by subsequent research, which shows that moral motivation (in particular feelings of empathetic concern) powerfully influences moral awareness, moral judgment and moral behavior.

hedonistic calculus of ethical theory of utilitarianism. Specially, issues with high moral intensity are argued to be more likely to be identified as ethical issues.

Particularly for less intense moral decisions, whether a given decision contains moral content, and the intensity of that content, will differ depending on the individual. That is, what might be a moral issue for one individual is not necessarily a moral issue for another. This is not due to any moral relativism, but rather to real differences in roles and commitments across individuals, for example, what is a moral issue for a U.S. military officer who has sworn an oath to uphold and defend the Constitution of the United States may not be a moral issue for a foreign civilian contractor who has made no such vow. Integrity requires that an individual's words and actions be consistent with his or her values and commitments, while in addition morality demands that those values and commitments be defensible and well-grounded in sound principles.

In the leadership setting, moral awareness requires paying attention to and reasoning not only about one's own perspective on an issue, but also the emotional responses and varied commitments of others. Additionally, to gauge the moral intensity of the issue, an ethical leader needs to make an assessment of the potential emotional consequences of alternative courses of action. This requires envisioning the consequences of potential courses of action, predict the probability of the consequences, gauging where the social consensus around the issue falls (while recognizing that mere consensus is no guarantee of correct ethical judgment), and considering the potential impact of the broader context. This process has been referred to in the social science literature as employing 'moral imagination' – conceptualising alternative pathways for action as well as possible ramifications from, and for, those involved (Somerville, 2006).

All of the cognitive reasoning processes described above emanate from the

functions of the DMN and numerous studies in neuroscience have found the DMN to be consistently and reliably recruited when subjects are presented with ethical stimuli (see for example Greene et al., 2001, 2004; Harenski & Hamann, 2006; Robertson et al., 2007; Schaich Borg et al., 2006, 2008). Given what we know about the specialized yet interdependent functions of the DMN, the evidence is compelling that the degree of engagement of the DMN is critical to determining a leader's level of moral awareness. For example, the TPJ is known to be activated during tasks requiring decoding of social cues including the mental states of others (Ochsner et al., 2004; Young & Saxe, 2009; Schilbach et al., 2008, 2012; FeldmanHall et al., 2012), tasks requiring the consideration of another's intentions (Young & Saxe, 2009), and disruption of TPJ activation interferes with the ability to make moral judgments (Young et al., 2012). The mPFC is known to be associated with a wide range of imagination-based cognition (Hassabis and Maguire, 2009), which would be required in order for a leader to assess the magnitude of the consequences of various course of action and predict the responses of others to alternative courses of action.

Moral judgment is concerned with the process by which individuals arrive at a judgment after having recognized the moral content of a situation or decision. A highly influential framework has been provided by Kohlberg (1969), who claimed that moral judgment is largely determined by an individual's cognitive capacity for moral reasoning. Beyond Kohlberg's work and similar work on moral cognitive capacity, researchers have also argued that individual difference variables impact moral judgment processes. For example, while for some individuals, arriving at a moral judgment involves a complex inner conflict between 'right' and 'wrong', for others, moral reasoning appears almost automatic with no conscious struggle to determine the 'right' decision (Blasi, 2005).

Some researchers have argued that 'moral schemas' allow some individuals to arrive at moral judgment with limited cognitive effort (Narvaez & Lapsley, 2005), while others have linked individual differences in moral judgment to preferences for relativism versus realism (Forsyth, 1980) and preferences for utilitarian (results-based) versus formalistic (rules-based) cognition (Brady & Wheeler, 1996).

Until recently, the studies in the neuro- and cognitive sciences have not distinguished between different stages of the moral decision making process, due to a reliance on "time-locked" statistical analyses (Borg, Sinnott-Armstrong, Calhoun, & Kiehl, 2011; Decety & Cacioppo, 2012). However more recent work shows compelling evidence to support both the distinction made in the social sciences between moral awareness and moral judgement and the role of emotions in moral decisions. Specifically, Borg et al., (2011) found that regions of the DMN were active during 'moral deliberation' – "the detection, filtering, and weighting (consciously or unconsciously) of relevant moral principles, heuristics, or concepts" (p.2) – however the DMN was not significantly activated when an individual came to the verdict (judgement) of whether the act was morally wrong[8]. Rather, Borg et al., (2011) found that the bilateral anterior insula and subcortical regions including the basal ganglia were significantly correlated with moral judgement – regions of the brain more associated with the TPN. These findings add support for our premise in this article that in order to arrive at an ethical decision, a leader requires both socio-emotional reasoning enabled by the DMN and analytical reasoning enabled by the TPN. The absence of socio-emotional reasoning will likely result in the leader failing to acknowledge or fully appreciate the moral content of a

[8] This finding only held for judgments/verdicts that an act was morally wrong. Borg et al (2011) suggest that it is possible that different neural networks may be used for negative moral verdicts compared to positive moral verdicts.

given situation, while a lack of analytical reasoning would result in an inability to arrive at a defensible moral judgment or verdict.

Developing a Culture for Ethical Leadership

The brain does not operate in a vacuum, but is deeply influenced by cultural frames, which have the effect of creating norms for the specific perspectives employed to think about complex social issues. Healey and Hodgkinson (2014) make a compelling case for the importance of examining the impact of downward causation in neuro-scientific analysis – that is, how organizations influence the brain. In this section we consider two specific ways in which organizations can influence ethical leadership through influencing the brain: organizational culture and discourse and prolonged exposure to either analytical or socio-emotional organizational environments.

One way in which our social environment impinges upon our psyche and creates socialization toward certain values is through the organizational culture. The importance of organizational culture in influencing ethical decisions and behavior in organizations has been discussed in detail by Jones, Felps, and Bigley (2007) in their conceptual development of a stakeholder culture. Empirical evidence has also alluded to the importance of organizational culture in ethical leadership. For example, Toor and Ofori (2009) found that ethical leadership is positively associated with a transformational organizational culture and negatively associated with a transactional organizational culture.

Given that organizational culture and climate (Ashforth, 1985; Poole, 1985; Poole & McPhee, 1983) and leadership identity (DeRue & Ashford, 2010; Fairhurst & Grant, 2010; Reicher, Haslam, & Hopkins, 2005) may be viewed as socially constructed (1966

& Luckman, 1966), and discourse is a central mechanism through which this social construction occurs (Grant et al., 2004; Weick, 1995; Barge & Little, 2002; Alvesson, 2004); it follows that organizational discourse plays an important part in ethical awareness, judgment, behavior, and leadership in organizations (Clegg, Korngerger, &Rhodes, 2007). The importance of discourse in influencing cognition is consistent with Smith and Semin's fourth principle of socially situation cognition (2004) – that "cognition is distributed across brains and environments through the use of tools" (Smith & Semin, 2004: 53), including discourse and communication.

Organizational discourse not only facilitates the social construction of organizational culture, but also acts as a mechanism that facilitates the humanization or dehumanization of people in the organization. Unfortunately, a byproduct of the shift from scientific management (Taylor, 1914) to the Human Relations movement (Mayo, 1949) appears to be a growing tendency for organizations and leaders to see humans purely as 'means' rather than 'ends in themselves' – a direct violation of Kant's Humanity formula (Cheney & Carrol, 1997; see Johnson, 2014). As discussed extensively by Cheney and Carrol (1997), organizational discourse subtly encourages reference to people as mere objects – essentially removing their "a priori ethical value"[9].

This shift from seeing humans purely as means, rather than ends in themselves is commonly referred to as 'dehumanization'. Cheney and Carrol (1997) list a number of ways in which organizational discourse encourages and facilitates the dehumanization of its people including: (a) referring to work related practices as if individual persons are largely or completely absent (e.g. 'instrumental networking)'; (b) seeing individual

[9] A priori ethical value is defined as "a person's intrinsic value, feelings, and potential and actual contributions to larger society".

persons as merely subjected to forces beyond their control (e.g. 'right-sizing'); (c) perceiving individual persons as less important than policies or strategies (e.g. 'It's business; its not personal'); (d) referring to persons only as a means to accomplishing organizational ends (e.g. 'people are an asset to be allocated'); and (e) seeing persons as commodities, products, or resources of monetary value (e.g. 'human capital') (p. 595-596).

Dehumanization facilitated through discourse is by no means the only way in which organizational culture influences ethical behavior and leadership in organizations. Given that our neural structures change in response to repeated exposure to a given stimulus, prolonged exposure to organizational environments that privilege either analytical perspectives or socio-emotional perspectives increases the risk of leaders becoming 'stuck' in one cognitive mode, reducing their ability to consider ethical issues from multiple stances and balance alternate perspectives against each other. Prolonged exposure to analytical environments is particularly troublesome for ethical leadership as it not only reduces the leader's ability to be ethically aware, but also reduces their ability to influence followers to behave ethically, due to the minimization of the relationship (Bhal & Dadhich, 2011) and lack of social learning (Mayer et al., 2009) through which influence occurs.

Finally, in a recent ethnography carried out in in large Wall Street banks, Michel (2012) found that the bankers actually dehumanized themselves in an attempt to survive the competitive organizational environment. Worryingly, Michel found that within one to three years of starting on Wall Street, bankers began to see and refer to their own bodies as mere objects. From year four onwards, the effects of their extreme working conditions surfaced in moderate to severe mental and physical illness. However, rather than see this

as a human response to the situation, the bankers saw their bodies as antagonists that were thwarting their efforts to succeed. As discussed below, both of these framings significantly increase the likelihood of unethical decision-making and behavior.

While the use of dehumanization in organizations is so common that it may seem trivial, Christoff (2014) notes that "Contrary to the commonly held belief that everyday forms of dehumanization are innocent and inconsequential, the evidence shows profoundly negative consequences for both victims and perpetrators" (p.1). Fortunately, recent work in cognitive neuroscience shows that dehumanizing can be better understood by examining the underlying neurological processes.

Dehumanizing and the Brain

Dehumanization generally refers to the process of thinking of others as 'less than human' (Jack, Dawson, & Norr, 2013; Smith, 2011). The extent and nature of dehumanizing is rather broad ranging from the 'complete deprivation of humanity' (Leyens, et al., 2007) to the less severe denial of particular human attributes (Haslam, 2006) to the more ambiguous denial of human essence (Costello & Hudson, 2010). Haslam (2006) proposed two distinct types of dehumanization – animalistic dehumanization and mechanistic dehumanization. Animalistic dehumanization occurs when humans are seen as living, yet non-human animals that are associated with feelings of contempt and disgust. In contrast, mechanistic humanization occurs when humans are seen as machines and is associated with feelings of social distance and indifference.

From the opposing domains framework, humanizing involves activation of the DMN and deactivation of the TPN (the phenomenal stance), animalistic dehumanization involves co-activation of both the DMN and TPN (the instrumental stance – top right

quadrant of Figure 1), and mechanistic dehumanization involves activation of the TPN and deactivation of the DMN (the physical stance) (top left quadrant in Figure 1). A recent fMRI study found support for Haslam's two types of dehumanization and the involvement of the TPN and the DMN. Specifically, Jack, Dawson, and Norr (2013) mapped four types of ethical attitude to others onto activation of the DMN and the TPN (see Figure 1).

INSERT FIGURE 1 ABOUT HERE

As suggested by Haslam (2006) and depicted in Figure 1, animalistic and mechanistic dehumanization showed distinct patterns in neurological activation. Both involved the activation of the TPN (analytical thinking), however mechanistic dehumanization showed a healthy reduction in the TPN while animalistic dehumanization showed strong simultaneous activation of both the TPN and DMN. Animalistic dehumanizing has been identified as the more ethically pernicious form of dehumanizing, which typically precedes atrocities such as genocide (Smith, 2011). It is interesting to note that it also shares a similar neural signature to many mental disorders, i.e. co-activation of the TPN and DMN.

It is our view that animalistic dehumanizing is detrimental to effective performance and always ethically unacceptable (French & Jack, 2015). On the other hand, if we consider some of the situations in which mechanistic dehumanization is commonly used (e.g. surgeons with patients; psychologists to patient; and to some types

of human subjects research), it is clear that the use of mechanistic dehumanization is sometimes necessary in particular circumstances in order for certain tasks to be effectively achieved. It is of no help to anyone if a surgeon displays empathy toward his or her patient mid-surgery. Indeed, measures such as covering the patient's face are intentionally designed to reduce such emotion, to allow the surgeon to focus. Thus, more generally, we do not endorse the view that objectification of others is inherently unethical; since it is an inevitable and necessary strategy for accomplishing many tasks (French & Jack, 2015). A related point was made by Kant, put here into a more contemporary context:

> "[The] Humanity formula does not rule out using people as means to our ends. Clearly this would be an absurd demand, since we do this all the time. Indeed, it is hard to imagine any life that is recognizably human without the use of others in pursuit of our goals. The food we eat, the clothes we wear, the chairs we sit on and the computers we type at are gotten only by way of talents and abilities that have been developed through the exercise of the wills of many people. What the Humanity formula rules out is engaging in this pervasive use of Humanity in such a way that we treat it as a *mere* means to our ends"
>
> (Johnson, 2014: section 6).

However, mechanistic dehumanization must not persist beyond what is necessary. It is apparent that the ethically necessary switch back from mechanistic dehumanization to humanization can be easily overlooked. The failure to attend to the humanizing perspective, which is so essential for offsetting the effects of mechanistic dehumanizing, may occur because of the individual's personality, or because the organizational or

occupational culture privileges one mode of cognition over another. For example, if we return to the hospital setting, mechanistic dehumanization is appropriate only during surgery. Outside of the surgery room, we expect surgeons to address the patient and their family with genuine empathy. Axelrod & Dorr (2000) note that changes in the health care structure have increased pressure for surgeons to develop a higher level of trust with their patients. The authors go on to note that this has required a shift in ethical perspective in the medical profession from viewing patients solely as machines to understanding the patient as a person and understand that patients have a choice in their medical treatment.

We agree with the spirit of Kant's work by noting that objectification and mechanistic dehumanizing are inevitable and sometimes necessary in organizations, but that they must be balanced with periods of humanization. This is necessary to avoid the slippery slope toward seeing others *merely* as means, and as a result, feeling no barrier to engaging in unethical behaviors. While objectifying discourse in the organization (e.g. emphasizing "people are this organization's most valuable asset") may be initially intended to help motivate a more genuinely human approach to employees, it is all too easy for this framing to get picked up and used in a way that encourages an instrumental attitude. For example, Zhong (2011) found that simply priming people with analytical thinking before asking them to make an ethical decision made people almost twice as likely to deceive others. Further, framing the task as a decision-making task rather than an intuitive reaction task also resulted in people being twice as likely to lie. This suggests that simply framing the task in an analytical way is enough to increase the likelihood of unethical decisions. Finally, Zhong also found that those people in the ethical decision condition during the experiment would donate twice as much to a charity of their choice

than those who were in the unethical condition. Together, these results highlight that while deliberative, instrumental, and detached reasoning is necessary at times in organizations, it influences our decision-making in subtle, unintended but highly ethically significant ways.

Further evidence of the link between instrumental framings of organizational practices and ethics has been found in the realm of social networking. Specifically, Casciaro, Gino, and Kouchaki (2014) found that 'professional-instrumental networking' reduces some people's sense of their own moral purity. That is, when people are required to form personal relationships with the intention of using these relationships in the pursuit of professional goals, they feel that they are violating their moral principles. However, it is well known that this type of networking is positively related to virtually all aspects of job performance (Papa, 1990; Mehra, Kilduff, & Brass, 2001; Sparrowe et al., 2001; Cross & Cummings, 2004; Forret & Dougherty, 2001; Wolff & Moser, 2009). Thus, people are encouraged to learn to turn off or ignore their moral awareness in order to pursue professional goals. As discussed earlier, while this is not an issue in moderation, it must be balanced with humanistic perspectives in order to maintain a healthy balance.

In sum, in order to make ethical decisions, to behave in an ethical manner, and to encourage others to do likewise, evidence suggests that leaders need to use both analytical and socio-emotional reasoning, but not simultaneously. Additionally, leaders need to encourage an organizational culture that provides a balance between these two cognitive modes and counters any necessary objectification or mechanistic dehumanization with intentional and effective humanizing. Leaders need to be aware that while objectifying discourse is inevitable, the use of such language creates a cognitive framing effect that tends to impede ethical decision-making and behavior. To

make this point salient, consider one's family and loved ones – individuals who (we hope) you unambiguously view as 'ends in themselves' rather than as 'means to an end'. There are few individuals who would feel comfortable referring to their family members and loved ones as their 'most important assets' except, perhaps, in jest.

Towards Evidence-based Ethical Training

One might attribute the recent awakening to the need for ethics in leadership and business to improvements in the curriculum at business schools, which graduate 100,000-140,000 MBAs a year world-wide and also bringing a plethora of executives through corporate leadership training. Sadly, outcome assessment and accreditation reviews challenge this view (Astin, 1993; Boyatzis, Stubbs & Taylor, 2002). Nonetheless, there have been experiments in pedagogy that give hope to the idea that ethical thinking, behavior, and decision making can be taught. It is critical to appreciate that the teaching of ethics is not a mere matter of teaching content. People cannot simply memorize lists of what is right or wrong, or be subjected to rounds of "compliance training."

Effective ethics education comes instead from a hybrid of conveying the skill of moral reasoning (which includes training the mind to exhibit greater moral awareness) and creating experiences that activate the DMN and engage people in dialogue with others who have diverse perspectives. This approach is in some ways a return to the pedagogy advocated by the American pragmatist philosopher John Dewey: "How do we become ethical human beings? A short answer based on my research so far, is 'by becoming whole human beings' (Culham, 2013, p. 7). In a similar vein, we would argue that rather than privileging one mode of reasoning over the other, the key to becoming an effective ethical leader is to develop both analytical and socio-emotional reasoning

abilities and to maintain a healthy balance between the two.

We believe that the ability to cycle effectively back and forth between the TPN and DMN can be trained through using a mix of pedagogy that requires students to alternately utilize the TPN and DMN. Table 1 illustrates some of the complementary activities that could engage the DMN as well as the TPN. It is worth noting that teaching people to analyze case studies in order to learn what is right and what is wrong is an activity that is likely to predominately either activate the TPN alone or co-activate the TPN and DMN. A better tailored experience for encouraging pure activation of the DMN should include self-awareness building through self-reflective exercises, interpersonal activities in teams, and the full range of the experiential learning cycle (Kolb, 1984). Teaching people to be open to new ideas and others, as well as to have genuine moral concern for others, requires activating the DMN in isolation for periods. Activities that involve a diversity of participants, the introduction of new ideas, and the intentional use of emotional and social triggers to provoke responses such as empathy or righteous anger will help a student experience this difference in network activation. Recent conversations on the importance of maintaining robust study of the arts and humanities are relevant here, as education including such elements as philosophy, art, literature, history, and music helps address these needs. Most of the courses in most MBA programs are focused on the TPN. The challenge is in balancing activation of the two networks and encouraging a person to learn how to cycle back and forth smoothly and quickly. This would require first becoming facile with each network. Such facility can be encouraged through a more diverse and interdisciplinary approach to the education of leaders that integrates empirical research with meaningful personal and interpersonal experiences.

Insert Table 1 about here

Conclusion

This article explored opposing domains theory as elucidating a key neural aspect of ethical thinking. Opposing domains theory builds on the observation that our cognition is constrained by our neural architecture. The Task Positive Network (TPN) is engaged in an analytic mode of reasoning. It tends to suppress and to be suppressed by Default Mode Network (DMN), which is critical for social, emotional and ethical awareness. The division between analytic and empathetic thinking that is suggested by the neuroscience research reviewed may be viewed as an adding an orthogonal factor to psychological dual process theory. This factor provides a better account of the tension between utilitarian and deontological ethical reasoning, long evident in philosophical ethics, than traditional dual process theory. We next sought to explain how many lapses into unethical behavior or decisions result either (i) from overuse of the TPN and the consequential suppression the DMN, leading to reductions in moral awareness and ethical decisions that are self-alienating and tend to disregard human rights; or (ii) from the use of both the TPN and DMN in combination, a pattern of neural recruitment that is associated with poor focus and performance on analytic tasks, mental illness, instrumental and/or Machiavellian thinking, and dehumanizing.

In a leadership setting, moral awareness requires paying attention to and reasoning not only about one's own perspective on an issue, but also the emotional responses and varied commitments of others. Additionally, to gauge the moral intensity of the issue, a good leader needs to make an assessment of the potential emotional

consequences of alternative courses of action. When organizational culture and personality factors encourage over-emphasis of the TPN, leaders tend to dehumanize their colleagues, resulting in expedient decisions without awareness of the injustice to others. We propose that effective ethics education comes from conveying the skill of moral awareness and creating experiences that activate the DMN, for instance by engaging people in dialogue with others who have diverse perspectives. Current approaches to ethics training in management programs and education often fall prey to over emphasis of the TPN. e.g. by analyzing what is right and wrong and placing an emphasis on rules and compliance. While these activities have a role in ethics training, we propose a much stronger emphasis on a human perspective, through activities that engage the DMN and open people up to their own and others' emotional lives.

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Figure 1

Four broad cognitive modes for ethical reasoning