

# A multilevel, complexity theory approach to understanding gender bias in leadership

Mary Hogue<sup>a,\*</sup>, Robert G. Lord<sup>b</sup>

<sup>a</sup> Department of Management and Information Systems, Kent State University, P.O. Box 5190, Kent OH 44242-0001, USA

<sup>b</sup> The University of Akron, OH, USA

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## Abstract

We use principles from multilevel theory, complexity theory, and connectionist theory to integrate existing gender bias explanations into a comprehensive model of gender bias in leadership, one that can be used to examine and understand how throughout the leadership process gender bias occurs and can affect women negatively. The synthesis of connectionism and complexity theories provides an opportunity to suggest novel solutions to this important leadership problem, but it also shows why multiple solutions applied at individual, group, and organizational levels all may be required to change the way agents and systems of agents respond to potential female leaders.

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*Keywords:* Leadership; Gender; Complexity theory; Connectionist theory

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## 1. A multilevel, complexity theory approach to gender bias in leadership emergence

In today's dynamic, globally competitive world, organizations must capitalize fully on the strengths of all organizational members (Pfeffer & Tromley, 1995), particularly those in leadership roles; yet, all organizational members do not have the same opportunities to contribute as leaders. Although the number of women occupying lower-level management positions has been rising (Eagly & Carli, 2003), women continue to face obstacles in terms of being recognized and accepted as legitimate leaders (Eagly & Karau, 2002; Ridgeway, 2001). If women are not accepted as legitimate leaders, then their effectiveness across all types of leadership, both formal and informal, will be constrained, making gender bias a practical and significant problem for organizations.

Gender bias in leadership has been examined from a number of perspectives, including socialization and role development (Eagly & Karau, 2002), the development of gender-related social status (Ridgeway, 1997; Ridgeway & Balkwell, 1997), and cognitive processes related to social categorization (Heilman, Block, Martell, & Simon, 1989; Lord & Maher, 1991). Although each of these approaches brings a useful perspective for understanding gender bias, they all provide only a partial explanation of a phenomenon that involves many types of organizational units and processes occurring at multiple levels. To better understand the factors that may limit the emergence and acceptance of female leaders in work organizations, we develop a broader and more integrative approach to understanding gender bias in leadership.

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\* Corresponding author. Tel.: +1 330 672 1148.

E-mail address: [mhogue@kent.edu](mailto:mhogue@kent.edu) (M. Hogue).

Our approach is grounded in three basic assumptions. The first is that gender affects leadership through a complex set of processes involving a dynamic, intricate network of relationships among multilevel components in a complex organizational system. In other words, gender bias in leadership is an inter-individual, multilevel phenomenon. The second assumption is that social perception is a fundamental aspect of leadership including the effects of gender on leadership. Consequently, bias in the leadership process also is an intra-individual, cognitive and affective process with multi-level qualities as well (Hall & Lord, 1995). Our third assumption is that leadership is inherently a proactive process requiring a self-view as a potential leader and therefore reflecting skills built up through a lifetime of experience (Day & Halpin, 2004; Lord & Hall, 2005). This assumption suggests that leadership activities both construct meaning for others and create meaning for leaders by providing contextually grounded views of the self that are elaborated by social reactions and a leader's interpretation of those reactions. To address these three assumptions, we use a complex, multi-level approach.

### *1.1. Multilevel theory, emergent structures, and definitions of gender bias*

#### *1.1.1. Micro- and macro-level processes*

As our assumptions suggest, one issue that complicates our understanding of gender bias in leadership is that this phenomenon involves processes occurring at multiple levels in organizations. Although, due to the nature of interdependent relationships in complex systems, it is difficult to delineate clearly where these levels begin and end (Cilliers, 2001), we can describe them as reflecting both micro- and macro-level phenomena. Leadership perception ultimately is a micro-level psychological process that involves a single individual's perception of a potential leader, but these individual effects are embedded in macro-level group or organizational contexts that can constrain perceptual processes. In addition, micro-level individual processes may interact over time in complex, nonlinear ways to create emerging macro-level structures such as group status hierarchies or inter-individual networks in organizations. In short, there are important top-down and bottom-up processes that combine to produce gender-related leadership bias. Multilevel theory (Klein & Kozlowski, 2000; Yammarino, Dionne, Chun, & Dansereau, 2005) provides general guidelines and conceptual models for such effects, and complexity theory (Marion & Uhl-Bien, 2001) suggests specific types of dynamic processes that may be associated with leadership.

#### *1.1.2. Conceptual errors*

Conceptual errors arise from inappropriate generalizations from one level to another (Kozlowski & Klein, 2000; Yammarino et al., 2005). For example, one macro-level effect – the “glass ceiling,” which depicts a smaller than expected proportion of females attaining leadership positions at the highest levels in organizations – often is explained solely in terms of individual level processes such as the greater overlap of individual level implicit theories of successful managers with typical male as compared to typical female characteristics (Schein, 2001). While certainly important, such a psychological explanation may miss the effects of embedding individual level psychological processes in specific dyads, groups, organizations, or even national cultures (Hall & Lord, 1995; Klein, Dansereau, & Hall, 1994). Moreover, such an explanation does not address the role of individual level processes in influencing the emergence of these higher level aggregates.

Another example of a conceptual error arising from generalization across multiple levels of analysis can be found in Eagly & Karau's (2002) examination of prejudice against women leaders using research from individual (beliefs about leadership), dyad (evaluations of actual leader behaviors), and group (leadership emergence) levels, explaining all three in terms of role incongruity between typical female roles and typical leadership roles. Rather than being unique to gender research, difficulties in appropriately conceptualizing, measuring, and analyzing multilevel leadership processes are the norm rather than the exception (Yammarino et al., 2005). Thus, despite impressive scholarly work relating such factors as role development, status, and social categorization to gender biases in leadership, we still may be quite far from a full understanding of this important topic, which means that we also may be far from developing effective means of remediation.

#### *1.1.3. Definitions of bias*

Conceptual errors have led gender bias in leadership to be conceptualized in many ways: ranging from a poor fit between implicit theories of leadership and women (Heilman et al., 1989; Schein, 2001), to poorer evaluations of female leaders (Eagly & Karau, 2002), to lower probabilities of women emerging as leaders in small groups (Hall, Workman, & Marchioro, 1998), to a substantially smaller percentage of top-level female than male leaders (Eagly & Karau, 2002), and so on. However, one important point stressed by multilevel theory is that specification of multilevel

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