

# Leadership and levels of analysis: A state-of-the-science review

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## Abstract

The purpose of this article is to present a comprehensive, qualitative, narrative review of the leadership literature with an explicit focus on levels-of-analysis issues. Focusing on conceptual and empirical publications (books, book chapters, and journal articles) over the last 10 years in 17 areas of leadership research, we reviewed and coded 348 journal articles and book chapters for the degree of appropriate inclusion and use of levels of analysis in theory formulation, construct/variable measurement, data analytic techniques, and inference drawing. In general, while the literature on leadership is vast and growing, relatively few studies in any of the areas of leadership research have addressed levels-of-analysis issues appropriately in theory, measurement, data analysis, and inference drawing. Nevertheless, the findings reported are encouraging, as levels issues are still relatively new to the leadership field and some progress clearly has been made in the last decade. The implications of the current state-of-the-science for future research and the advancement of study in leadership are discussed.

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## 1. Introduction

Levels-of-analysis issues and multiple-level approaches are becoming increasingly important in many areas of organizational research and, in particular, in the literature of leadership. Various scholars (Dansereau, Alutto, & Yammarino, 1984; Dansereau, Yammarino, & Kohles, 1999; House, Rousseau, & Thomas-Hunt, 1995; Klein, Dansereau, & Hall, 1994; Rousseau, 1985) have noted the importance of clearly specifying the level(s) of analysis at which phenomena are expected to exist theoretically, and have stated that it is critical to ensure the measurement of constructs and data analytic techniques correspond to the asserted level(s) of analysis, so that inference drawing is not misleading or artifactual.

In the leadership literature, these notions were brought to the forefront of research about two decades ago in the work of Dansereau et al. (1984). Subsequently, when F. Yammarino was Senior Editor of *The Leadership Quarterly*, he commissioned a two-part special issue (published about one decade ago in 1995), guest edited by F. Dansereau, on 13 multiple-level approaches to leadership. Ultimately, this work culminated in a two-volume research monograph edited by Dansereau & Yammarino (1998a,b) on the multiple-level approaches to leadership.

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In this two-volume set, the editors reprinted the 13 original special issue articles, added the key measurement instruments for each leadership approach, commissioned and published two commentaries on each original article, and published a reply by the original article authors to the commentaries on their work. As this two-volume anthology was, at that time, the state-of-the-science on multiple levels-of-analysis issues and leadership, we use this past work as the starting point for our current effort. In particular, as 10 years have passed since the publication in *The Leadership Quarterly* of this original multi-level leadership work, we thought it appropriate to consider the current state-of-the-science on leadership and levels-of-analysis issues.

Specifically, our purpose here is to provide a comprehensive, qualitative, narrative review of the literature on leadership with an explicit focus on levels-of-analysis issues. Levels of analysis are the entities or objects of study about which we theorize, and are integral parts of the definitions of constructs, operationalizations of measures, and empirical tests of theoretical associations (Dansereau & Yammarino, 2000, 2003, 2005; Yammarino & Dansereau, 2002, 2004). In the various areas of leadership research, key levels of analysis are individuals or persons (independent human beings), dyads (two-person groups and interpersonal relationships), groups (work groups and teams), and organizations (collectives larger than groups and groups of groups) (see Dansereau et al., 1984; Yammarino, 1996; Yammarino & Bass, 1991).

In the current state-of-the-science review, 348 conceptual and empirical publications (i.e., book chapters and journal articles) in 17 primary areas of leadership research were reviewed and coded in terms of (1) the degree of appropriate inclusion of levels of analysis in theory and hypothesis formulation; (2) the extent to which levels of analysis are represented appropriately in the measurement of constructs and variables; (3) the degree to which levels of analysis are addressed in data analytic techniques; and (4) the extent to which theory and data are aligned from a levels-of-analysis perspective in drawing inferences.

The 17 primary approaches to leadership here include the 13 approaches presented in detail in the 1995 two-part special issue in *The Leadership Quarterly* and in the Dansereau & Yammarino (1998a,b) volumes — Ohio State, contingency, participative, charismatic, transformational, leader–member exchange, information processing/implicit, substitutes, romance, self-leadership, multiple linkage, multilevel/leaderplex, and individualized; two additional classical approaches discussed briefly by Dansereau & Yammarino (1998c,d) — path-goal and vertical dyad linkage; and two other established approaches — situational and influence tactics.

Clearly, several models of leadership worthy of consideration were not involved in the current review. For example, the pragmatic or functional leadership approach (e.g., Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000), strategic leadership/upper echelon theory (e.g., Finkelstein & Hambrick, 1996), and shared leadership (e.g., Pearce & Conger, 2003) among others were not included. We chose not to include certain models because of space and time considerations (i.e., the length of manuscript and additional coding time required), but more importantly we tried to align our review with the 1995 special issue in *The Leadership Quarterly*, the Dansereau & Yammarino (1998a,b) volumes, and other “classical” approaches and/or work associated with the authors in the 1995 and 1998 efforts. Ultimately, we have made some choices with which some readers may disagree, but with which we believe most researchers would be comfortable.

Conducting a state-of-the-science review and analysis of the 17 selected approaches in the leadership literature seemed important for at least three reasons (beyond merely marking a decade of time since many of the approaches were critically examined in detail). First, given the vast and growing literature on theories and models of leadership, it appears to be an appropriate time to “take stock” of this work. This is especially critical since relatively little of the research to date in these areas of research, as noted below, explicitly focuses on multiple levels-of-analysis issues. Understanding how and if levels are specified permits an examination of the potential or degree of prevalence of theoretical misspecification. Moreover, identification of relevant levels-of-analysis issues may help account for mixed, inconsistent, and contradictory findings in prior research.

Second, such a levels-of-analysis examination is critical prior to conducting any comprehensive meta-analysis of theories and models of leadership, which must, at a minimum, account for specific individual-level, within-organization, and organizational-level population parameter estimates (see Ostroff & Harrison, 1999). Without such levels-based efforts, comprehensive meta-analyses cannot be conducted accurately and theoretical advancement is inhibited. Third, only by fully incorporating levels of analysis in theory, measurement, data analysis, and inference drawing can a more comprehensive, integrative, and testable theory of leadership, regardless of approach or realm, result (see Dansereau et al., 1984; Dansereau & Yammarino, 1998a,b,c,d; Yammarino, 1996). Without explicit incorporation of levels-of-analysis issues, incomplete understanding of a construct or

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