The Leadership Quarterly 21 (2010) 1121–1143

Contents lists available at ScienceDirect

The Leadership Quarterly

journal homepage: www.elsevier.com/locate/leaqua

Leadership, levels of analysis, and déjà vu: Modest proposals for taxonomy and cladistics coupled with replication and visualization

Steven E. Markham *

Department of Management, Pamplin College of Business, Virginia Tech, Blacksburg, VA 24061, USA

ARTICLE INFO

Keywords:
Leader–Member Exchange
Vertical dyadic leadership
Multilevel
Levels of analysis
Cladistics
Scientific visualization
Covariance theorem
Superstructure
Meso
Relational Leadership Theory
Contextualization
Contextual analysis
LMX
S-LMX
VDL
RLT
IDT
DM-LMX
Organizational visualization
Dyadic visualization
Bubble chart

ABSTRACT

In the inaugural issue of *LQ's Yearly Review of Leadership*, Hunt and Dodge (2000, p. 442) note that, "Within the last two decades, one of the crucial developments in organizational research in general, and in leadership research specifically, is the articulation of specific levels of analysis and their implications for theory building, measurement, and observation." Their original observations are updated by extending the inferential logic of Yammarino, Dionne, Chun and Dansereau (2005) to determine if any increase in the utilization of a level of analysis perspective has occurred in the last five years. The possible evolution of leadership theory and analysis is discussed, especially with reference to Relational Leadership Theory, Leader–Member Exchange, and Individualized Dyadic Theory. Proposals incorporating taxonomic and visualization tools as a means to help bridge the stakeholder gap are also offered.

From a perspective external to the social sciences, the field of leadership can be viewed as a large and robust arena of study; however, to researchers working within its confines, it can sometimes seem disjointed and non-linear in its evolution (Hunt & Dodge, 2000). As part of the development and maturation of the leadership field, a fundamental position about the meso (i.e. inherent multilevel) nature of leadership research was captured by Hunt and Dodge (2000, p. 422) who noted: "Within the last two decades, one of the crucial developments in organizational research in general, and in leadership research specifically, is the articulation of specific levels of analysis and there implications for theory building, measurement, and observation." In describing the impact that the application of multilevel theories and tests can have, and in reinforcing the position of Hitt, Beamish, Jackson, and Mathieu (2007), Bamberger (2008, p. 839) writes:

> "…this revolution is already beginning to blur the division between "micro" and "macro" work, resulting in more robust theories that better capture the increasing complexity of organizational phenomena and relations and offering greater predictive power and real-world relevance."

* Tel.: +1 540 231 7381.
E-mail address: markhami@vt.edu.

1048-9843/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.leaqua.2010.10.011

This is not to say that the various issues related to the problem of levels of analysis and leadership were unknown before 1980; they were indeed known. From the awareness of ecological inferential fallacies (Robinson, 1950), to unit-of-analysis problems in correlations (Knapp, 1977; Ostroff, 1993), to the elaboration of the Covariance Theorem (Przeworski & Teune, 1970) to be used within an inferential testing system for drawing conclusions about both data and entity relationships (Dansereau, Alutto, & Yammarino, 1984), major strides were being made in both the methodological and theoretical tools that would converge so as to provide companion techniques for testing the increasingly complex meso-contextual leadership theories being offered. (The term "meso" refers to those leadership theories that inherently cross multiple levels of analysis and reside simultaneously in the conceptual space between granular micro and collective macro theories of organizations. As explained later, the term "contextual" is used as a similar, but more comprehensive term that can also include levels of analysis. The conceptual overlap between the terms meso and contextual is clarified later.) Indeed, the Hunt and Dodge article represents a turning point in the collective realization of the need for combined multilevel theory and data analytical techniques in the leadership domain.

However, despite the general recognition of the need for some combination of MLM (multilevel methods), MLAM (multilevel analytical methods), and MLTT (multilevel theoretical techniques), there has been limited operationalization of multilevel frameworks in the leadership arena (Yammarino, Dionne, Chun, & Dansereau, 2005). Specifically, in the Yammarino et al. (2005) review of 348 leadership articles and book chapters gleaned from highly rated social science journals and publications, they found that from 1995 to 2004 slightly less than 30% of both conceptual and empirical publications explicitly addressed the levels of analysis issue in some form or fashion. In fact, Hitt et al. (2007) note that approximately 25% of the articles published in *Academy of Management Journal* between August 2006 and July 2007 used some form of multilevel perspective, while 50% of articles published in the *Academy of Management Review* during the same time period discuss multilevel phenomena.

In attempting to further encourage the application of MLM (multilevel methods including both data analysis and theory development aspects), this article will attempt to answer the following two questions. First, has the leadership field increased its use of MLM during the last five years compared with the benchmarks suggested Yammarino et al. (2005)? Second, what additional refinements can be offered to the MLM effort so as to increase the overall efficacy and usability of future leadership results?

In order to attempt to answer the first question a modified version of the literature classification and review technique utilized by Yammarino et al. (2005) will be applied. Instead of applying it to all leadership articles across a wide venue of journals, this article's focus will include just the contents of *Leadership Quarterly* since the time of the 2005 review. This group of articles has been selected for: (1) the clarity of the focus of the readership on leadership issues, (2) the exposure of the readership to the Hunt and Dodge (2000) article, (3) and the convenience of having a clearly defined pool of articles from which to draw about which there is no question of the quality of the journal.

The second question will be addressed by reviewing and expanding upon the discussion of the process of scientific accumulation as described by Hunt and Dodge (2000). As an initial part of this discussion, the importance of classification taxonomy (Lambe, 2007) will be highlighted in an attempt to ensure that future research studies better integrate past findings, and that, in fact, these past studies can more easily be indentified and located in the burgeoning explosion of electronic knowledge repositories. As a second part of this discussion, the application of scientific visualization (Markham, 1998) to dyadic leadership theories is explored as a way to bridge the stakeholder gap between researchers and practitioners. In other words, how can we best ensure that researchers and practitioners "see" the same phenomena and are then positioned to take action based on these insights? For both the classification taxonomic issue and the scientific visualization issue, action proposals are offered.

1. An update: The Leadership Quarterly 2005–2009

1.1. Method and rationale

As noted earlier, this review and categorization focuses exclusively on published articles in *Leadership Quarterly* between 2005 and 2009. Thus, it takes up the flow of the research articles where the Yammarino et al. (2005) analysis left off. For this five year time period, a full bibliographic database download was accomplished using the ISI Web of Science search engine. There were 235 authored items that were downloaded. These included all indexed items from all relevant Tables of Contents. Of these 235 items, 36 pieces had to do with editorial comments, book reviews, letters to the editor, and corrections and errata. These were excluded from the analysis, leaving a usable pool of 199 articles. Of these, approximately 98 were conceptual and 101 were considered empirical articles. (There is some small ambiguity in this number because a few of the articles, while appearing to be reviews, occasionally provided data in conjunction with extended case analyses or other types of data analysis to support their conceptual arguments.) Each of these articles was reviewed by the author[1] in light of the same four questions used by Yammarino et al. (2005, p. 880):

1. The extent to which appropriate levels of analysis was included in theory and hypothesis formulation. (This question is relevant to both conceptual and empirical pieces, whereas the remaining questions apply only to empirical articles.)
2. The degree to which levels of analysis was reflected in the measurement of constructs and variables.

[1] Any errors of classification or interpretation are solely the author's.

3. The extent to which data analytical techniques addressed levels of analysis issues.
4. The alignment of theory and data from a levels perspective in drawing inferences.

With respect to their 348 publications, Yammarino et al. (2005) categorized them into 17 primary approaches to leadership that were, in turn, derived from previous work (see Dansereau & Yammarino, 1998a,b). For this study, however, no such categorizations were made because of the fundamentally different approach inherent within *LQ's* implied guiding philosophy; namely, to encourage a broad range of intellectual investigation, research, and discussion in areas relevant to leadership even if they may not necessarily fall within these empirical approaches. As such, this investigation was content to use multilevel methods in the broader domain of leadership, above and beyond these specific 17 approaches to leadership.

The 199 selected articles are listed alphabetically (within type of article) in Table 1. This table includes the authors, the type of article, the publication date, volume and issue in LQ, and dichotomous answers to the application questions listed earlier.

1.2. Q1: Theory and hypothesis formulation

In terms of fully articulating theories and corresponding hypotheses that are partially or fully couched in a multilevel framework, Yammarino et al. (2005) found across the 17 approaches of their 1995 to 2004 data set that slightly less than 30% of the conceptual and empirical articles met their criteria. In our *LQ*-specific data set, for both conceptual and empirical articles, 96 of 199 (or 48%) addressed the levels of analysis issue. Given that there might be empirical articles presenting experimental laboratory results or conceptual articles exploring new and undeveloped themes, it is not necessarily expected that this figure would ever reach 100%. As such, the 48% number is an overall gauge of improvement in the extensibility of multilevel analysis in the general domain of leadership related articles.

1.3. Q2: Measurement operationalization

Previously, Yammarino et al. (2005) found that 53% of the empirical publications either specified concepts and measures at the same level of analysis or aggregated their measures appropriately. For the empirical articles in the LQ-specific data set, 41 of 101 (or 41%) explicitly specified concepts and measures at the same level or aggregated appropriately.

1.4. Q3: Data analysis

With respect to the application of appropriate multilevel data analysis techniques, Yammarino et al. (2005) found that about 15% of empirical publications in the 17 leadership approaches used some multilevel data analytic technique correctly at the appropriate level(s) of analysis. Similar results were found with 28 of 101 (or 28%) of the empirical articles meeting this criterion. This can also be seen as a potential improvement.

1.5. Q4: Inferential alignment

In examining the inferential process of how theory and data are aligned so as to draw conclusions, Yammarino et al. (2005) discovered that about 43% of empirical publications in the leadership realms showed an appropriate alignment of theory and data at the correct level(s) of analysis. In this new data set, about 26 of 101 (or 26%) showed similar alignment. As noted by Yammarino et al. (2005) most of these studies primarily work with individual level data. However, the 26% can be viewed as an artifact of the number of experiments, quasi-experiments, and simulations that occurred in LQ in which a discussion of levels of analysis is not especially relevant. If these studies are removed from consideration, then the percentage of studies in alignment approaches 45%.

All in all, it appears that the leadership field is increasingly recognizing the need to account for levels of analysis concerns in framing theories and hypotheses. However, there are still ongoing debates about the best manner in which to operationalize these notions with respect to specific measures and data analytic techniques. It is also not clear as to how the increasingly complex theories and tests will be able to inform each other and to accumulate over time. As the approaches to multilevel modeling proliferate, and as increasing number of theoretical and empirical articles incorporate this complexity, it may be more and more difficult to keep various sub-branches of the leadership field informed of each other. In other words, how can our field prevent the phenomenon related by Hunt and Dodge (2000, p. 436) in the story of the leadership researcher who reportedly said, “I was gone from the leadership field for ten years. When I returned, it was as if I had been gone ten minutes.” This notion is encapsulated by Hunt and Dodge's phrase: “the déjà vu effect.”

Given the concern in any field of scientific study for the need to be able to accumulate and utilize research findings, the déjà vu effect is an implicit indictment of our difficulty in moving the leadership field forward. This is not to say that no progress has unfolded; on the contrary, for there are a number of excellent examples of cumulative integration of research findings within selected research streams. Rather, as a whole field, one can question the overall amount of cross-stream utilization as we attempt to accumulate knowledge about leadership and its boundary conditions. By the same token, Hunt and Dodge (2000) are also concerned about the dialog between practitioners and researchers and about ways to encourage better communication between these communities. Thus, the remainder of this paper will explore two themes: how better taxonomies of leadership theories and how visual applications of multilevel, replicated results might used to prevent various manifestations of academic amnesia known as the déjà vu effect.

Table 1
Categorization and analysis of conceptual and empirical leadership articles in LQ 2005–2009.

Authors/Year	Volume	Issue	Type	Q1: Theory?	Q2: Measures?	Q3: Analysis?	Q4: Inference?
Ahn, D, 2008	19	4	Conceptual	No			
Antonakis, J; Ashkanasy, NM; Dasborough, MT, 2009	20	2	Conceptual	No			
Balkundi, P; Kilduff, M, 2006	17	4	Conceptual	Yes			
Balkundi, P; Kilduff, M, 2005	16	6	Conceptual	No			
Benefiel, M, 2005	16	5	Conceptual	No			
Berson, Y; Nemanich, LA; Waldman, DA; Galvin, BM; Keller, RT, 2006	17	6	Conceptual	Yes			
Bligh, MC; Hess, GD, 2007	18	2	Conceptual	No			
Bligh, MC; Kohles, JC, 2009	20	3	Conceptual	No			
Bluedorn, AC; Jaussi, KS, 2008	19	6	Conceptual	Yes			
Boal, KB; Schultz, PL, 2007	18	4	Conceptual	No			
Boje, DM; Rhodes, C, 2006	17	1	Conceptual	No			
Bolino, MC; Turnley, WH, 2009	20	3	Conceptual	Yes			
Brown, ME; Trevino, LK, 2006	17	6	Conceptual	No			
Burke, CS; Sims, DE; Lazzara, EH; Salas, E, 2007	18	6	Conceptual	Yes			
Cabrera-Suarez, K, 2005	16	1	Conceptual	No			
Campbell, RA, 2008	19	4	Conceptual	No			
Carmeli, A; Halevi, MY, 2009	20	2	Conceptual	Yes			
Cha, SE; Edmondson, AC, 2006	17	1	Conceptual	No			
Chen, GL; Trevino, LK; Hambrick, DC, 2009	20	3	Conceptual	No			
Collinson, D, 2006	17	2	Conceptual	No			
Cooper, CD; Scandura, TA; Schriesheim, CA, 2005	16	3	Conceptual	No			
Cronin, TE, 2008	19	4	Conceptual	No			
Crossan, M; Vera, D; Nanjad, L, 2008	19	5	Conceptual	Yes			
Dansereau, F; Yammarino, FJ, 2006	17	5	Conceptual	Yes			
Dasborough, MT; Ashkanasy, NM; Tee, EYJ; Tse, HHM, 2009	20	4	Conceptual	Yes			
Dent, EB; Higgins, AE; Wharff, DM, 2005	16	5	Conceptual	No			
Dionne, SD; Dionne, PJ, 2008	19	2	Conceptual	Yes			
Drath, WH; McCauley, CD; Palus, CJ; Van Velsor, E; O'Connor, PMG; McGuire, JB, 2008	19	6	Conceptual	No			
Eagly, AH, 2005	16	3	Conceptual	Yes			
Einarsen, S; Aasland, MS; Skogstad, A, 2007	18	3	Conceptual	No			
Ferris, GR; Zinko, R; Brouer, RL; Buckley, MR; Harvey, MG, 2007	18	3	Conceptual	No			
Foldy, EG; Goldman, L; Ospina, S, 2008	19	5	Conceptual	No			
Fry, LW; Vitucci, S; Cedillo, M, 2005	16	5	Conceptual	Yes			
Furst, SA; Reeves, M, 2008	19	3	Conceptual	No			
Gardner, WL; Avolio, BJ; Luthans, F; May, DR; Walumbwa, F, 2005	16	3	Conceptual	Yes			
Gardner, WL; Fischer, D; Hunt, JG, 2009	20	3	Conceptual	No			
Giambatista, RC; Rowe, WG; Riaz, S, 2005	16	6	Conceptual	No			
Goethals, GR, 2008	19	4	Conceptual	No			
Hanges, PJ; Dickson, MW, 2006	17	5	Conceptual	Yes			
Hannah, ST; Avolio, BJ; Luthans, F; Harms, PD, 2008	19	6	Conceptual	Yes			
Hannah, ST; Lester, PB, 2009	20	1	Conceptual	Yes			
Hansen, H; Ropo, A; Sauer, E, 2007	18	6	Conceptual	No			
Hazy, JK, 2007	18	4	Conceptual	Yes			
Henderson, DJ; Liden, RC; Glibkowski, BC; Chaudhry, A, 2009	20	4	Conceptual	Yes			
Hogue, M; Lord, RG, 2007	18	4	Conceptual	Yes			
Hunt, JG; Osborn, RN; Boal, KB, 2009	20	4	Conceptual	No			
Hunter, ST; Bedell-Avers, KE; Mumford, MD, 2007	18	5	Conceptual	Yes			
Ilies, R; Morgeson, FP; Nahrgang, JD, 2005	16	3	Conceptual	No			
Kort, ED, 2008	19	4	Conceptual	No			
Kriger, M; Seng, Y, 2005	16	5	Conceptual	Yes			
Ladkin, D, 2008	19	1	Conceptual	No			
Lord, RG; Hall, RJ, 2005	16	4	Conceptual	No			
Manz, CC; Anand, V; Joshi, M; Manz, KP, 2008	19	3	Conceptual	No			
Martinko, MJ; Harvey, P; Douglas, SC, 2007	18	6	Conceptual	No			
Maslin-Wicks, K, 2007	18	5	Conceptual	No			
McCauley, CD; Drath, WH; Palus, CJ; O'Connor, PMG; Baker, BA, 2006	17	6	Conceptual	Yes			
McKenna, B; Rooney, D; Boal, KB, 2009	20	2	Conceptual	No			
Michie, S; Gooty, J, 2005	16	3	Conceptual	No			
Moss, SA; Dowling, N; Callanan, J, 2009	20	2	Conceptual	No			
Mumford, MD; Antes, AL; Caughron, JJ; Friedrich, TL, 2008	19	2	Conceptual	Yes			
Mumford, MD; Friedrich, TL; Caughron, JJ; Byrne, CL, 2007	18	6	Conceptual	No			
Nelson, G; Dyck, J, 2005	16	1	Conceptual	No			
Nelson, M, 2008	19	4	Conceptual	No			
Novicevic, MM; Heames, JT; Paolillo, JGP; Buckley, MR, 2009	20	2	Conceptual	No			
Osbom, RN; Hunt, JG, 2007	18	4	Conceptual	No			
Padilla, A; Hogan, R; Kaiser, RB, 2007	18	3	Conceptual	Yes			
Palanski, ME; Yammarino, FJ, 2009	20	3	Conceptual	Yes			

Table 1 (*continued*)

Authors/Year	Volume	Issue	Type	Q1: Theory?	Q2: Measures?	Q3: Analysis?	Q4: Inference?
Pearce, CL; Manz, CC; Sims, HP, 2008	19	3	Conceptual	No			
Peterson, MF; Castro, SL, 2006	17	5	Conceptual	Yes			
Pittinsky, TL; Simon, S, 2007	18	6	Conceptual	Yes			
Pittinsky, TL; Zhu, C, 2005	16	6	Conceptual	Yes			
Plowman, DA; Solansk, S; Beck, TE; Baker, L; Kulkarni, M; Travis, DV, 2007	18	4	Conceptual	No			
Porter, LW; McLaughlin, GB, 2006	17	6	Conceptual	Yes			
Price, TL, 2008	19	4	Conceptual	No			
Provizer, NW, 2008	19	4	Conceptual	No			
Reave, L, 2005	16	5	Conceptual	No			
Reicher, S; Haslam, SA; Hopkins, N, 2005	16	4	Conceptual	No			
Rosenthal, SA; Pittinsky, TL, 2006	17	6	Conceptual	No			
Scherbaum, CA; Finlinson, S; Barden, K; Tamanini, K, 2006	17	4	Conceptual	No			
Schneider, M; Somers, M, 2006	17	4	Conceptual	No			
Shamir, B; Eilam, G, 2005	16	3	Conceptual	No			
Sparrowe, RT, 2005	16	3	Conceptual	No			
Sternberg, RJ, 2008	19	3	Conceptual	No			
Treadway, DC; Adams, GL; Ranft, AL; Ferris, GR, 2009	20	4	Conceptual	Yes			
Tyler, TR; De Cremer, D, 2005	16	4	Conceptual	No			
Uhl-Bien, M, 2006	17	6	Conceptual	Yes			
Uhl-Bien, M; Marion, R, 2009	20	4	Conceptual	Yes			
Uhl-Bien, M; Marion, R; McKelvey, B, 2007	18	4	Conceptual	Yes			
Waldman, DA; Javidan, M, 2009	20	2	Conceptual	No			
Waldman, DA; Siegel, D, 2008	19	1	Conceptual	No			
Walker, MC, 2006	17	2	Conceptual	No			
Warner, N, 2007	18	1	Conceptual	No			
Whittington, JL; Pitts, TM; Kageler, WV; Goodwin, VL, 2005	16	5	Conceptual	No			
Williamson, T, 2008	19	4	Conceptual	No			
Yammarino, FJ; Dionne, SD; Chun, JU; Dansereau, F, 2005	16	6	Conceptual	Yes			
Yammarino, FJ; Dionne, SD; Schriesheim, CA; Dansereau, F, 2008	19	6	Conceptual	Yes			
Yukl, G, 2009	20	1	Conceptual	No			
Yukl, G, 2008	19	6	Conceptual	No			
Allison, ST; Eylon, D; Beggan, JK; Bachelder, J, 2009	20	2	Empirical	No	No	No	No
Anderson, DW; Krajewski, HT; Goffin, RD; Jackson, DN, 2008	19	5	Empirical	Yes	Yes	No	No
Arvey, RD; Rotundo, M; Johnson, W; Zhang, Z; McGue, M, 2006	17	1	Empirical	No	No	No	No
Atwater, L; Carmeli, A, 2009	20	3	Empirical	Yes	Yes	No	No
Avolio, BJ; Rotundo, M; Walumbwa, FO, 2009	20	3	Empirical	No	No	No	No
Ballinger, GA; Schoorman, FD; Lehman, DW, 2009	20	2	Empirical	Yes	Yes	No	No
Bartone, PT; Snook, SA; Forsythe, GB; Lewis, P; Bullis, RC, 2007	18	5	Empirical	Yes	Yes	No	No
Bedell-Avers, K; Hunter, ST; Angie, AD; Eubanks, DL; Mumford, MD, 2009	20	3	Empirical	No	No	No	No
Bedell-Avers, KE; Hunter, ST; Mumford, MD, 2008	19	1	Empirical	No	No	No	No
Black, JA; Oliver, RL; Howell, JP; King, JP, 2006	17	1	Empirical	No	No	No	No
Boies, K; Howell, JA, 2006	17	3	Empirical	Yes	Yes	Yes	No
Bono, JE; Ilies, R, 2006	17	4	Empirical	No	No	No	No
Brouer, RL; Duke, A; Treadway, DC; Ferris, GR, 2009	20	2	Empirical	Yes	No	No	No
Brown, DJ; Keeping, LM, 2005	16	2	Empirical	No	No	No	No
Burke, CS; Stagl, KC; Klein, C; Goodwin, GF; Salas, E; Halpin, SM, 2006	17	3	Empirical	Yes	No	No	No
Calogero, RM; Mullen, B, 2008	19	1	Empirical	No	No	No	No
Campbell, SM; Ward, AJ; Sonnenfeld, JA; Agle, BR, 2008	19	5	Empirical	Yes	Yes	Yes	Yes
Carmeli, A; Schaubroeck, J, 2007	18	1	Empirical	No	No	No	No
Carmeli, A; Schaubroeck, J, 2006	17	5	Empirical	No	No	No	No
Cogliser, CC; Schriesheim, CA; Scandura, TA; Gardner, WL, 2009	20	3	Empirical	Yes	Yes	Yes	Yes
Cole, MS; Bedeian, AG, 2007	18	5	Empirical	Yes	Yes	Yes	No
Dasborough, MT, 2006	17	2	Empirical	No	No	No	No
De Cremer, D, 2006	17	1	Empirical	No	No	No	No
De Hoogh, AHB; Den Hartog, DN, 2008	19	3	Empirical	Yes	Yes	No	No
De Hoogh, AHB; Den Hartog, DN; Koopman, PL; Thierry, H; Van den Berg, PT; Van der Weide, JG; Wilderom, CPM, 2005	16	1	Empirical	Yes	No	No	No
Dickson, MW; Resick, CJ; Hanges, PJ, 2006	17	5	Empirical	Yes	Yes	Yes	No
Duchon, D; Plowman, DA, 2005	16	5	Empirical	Yes	No	No	No
Dyer, NG; Hanges, PJ; Hall, RJ, 2005	16	1	Empirical	Yes	Yes	Yes	Yes
Ensley, MD; Hmieleski, KM; Pearce, CL, 2006	17	3	Empirical	Yes	Yes	Yes	No
Epitropaki, O; Martin, R, 2005	16	4	Empirical	No	No	No	No
Ford, LR; Seers, A, 2006	17	3	Empirical	Yes	Yes	Yes	No
Foti, RJ; Knee, RE; Backert, RSG, 2008	19	2	Empirical	Yes	Yes	Yes	Yes
Giessner, SR; van Knippenberg, D; Sleebos, E, 2009	20	3	Empirical	No	No	No	No
Golden, TD; Veiga, JF, 2008	19	1	Empirical	Yes	No	No	No
Guastello, SJ, 2007	18	4	Empirical	Yes	No	No	No
Harris, KJ; Kacmar, KM; Zivnuska, S, 2007	18	3	Empirical	Yes	No	Yes	No

(*continued on next page*)

Table 1 (*continued*)

Authors/Year	Volume	Issue	Type	Q1: Theory?	Q2: Measures?	Q3: Analysis?	Q4: Inference?
Harris, KJ; Wheeler, AR; Kacmar, KM, 2009	20	3	Empirical	Yes	Yes	Yes	No
Harvey, P; Stoner, J; Hochwarter, W; Kacmar, C, 2007	18	3	Empirical	No	No	No	No
Haslam, SA; Ryan, MK, 2008	19	5	Empirical	No	No	No	No
Hiller, NJ; Day, DV; Vance, RJ, 2006	17	4	Empirical	Yes	Yes	No	No
Hinkin, TR; Schriesheim, CA, 2008	19	5	Empirical	No	No	No	No
Hogg, MA; Fielding, KS; Johnson, D; Masser, B; Russell, E; Svensson, A, 2006	17	4	Empirical	Yes	No	No	No
Hooper, DT; Martin, R, 2008	19	1	Empirical	Yes	Yes	No	No
Howell, JM; Neufeld, DJ; Avolio, BJ, 2005	16	2	Empirical	Yes	No	No	No
Hoyt, CL; Simon, S; Reid, L, 2009	20	2	Empirical	Yes	No	No	No
Huang, X; Wright, RP; Chiu, WCK; Wang, C, 2008	19	3	Empirical	Yes	Yes	Yes	No
Hunter, ST; Bedell-Avers, KE; Mumford, MD, 2009	20	3	Empirical	No	No	No	No
Jansen, JJP; Vera, D; Crossan, M, 2009	20	1	Empirical	No	No	No	No
Johnson, SK, 2008	19	1	Empirical	Yes	Yes	Yes	Yes
Jung, D; Wu, A; Chow, CW, 2008	19	5	Empirical	Yes	No	No	No
Jung, D; Yammarino, FJ; Lee, JK, 2009	20	4	Empirical	Yes	Yes	Yes	Yes
Kacmar, KM; Zivnuska, S; White, CD, 2007	18	1	Empirical	Yes	No	No	No
Kellett, JB; Humphrey, RH; Sleeth, RG, 2006	17	2	Empirical	Yes	Yes	Yes	No
Lapidot, Y; Kark, R; Shamir, B, 2007	18	1	Empirical	No	No	No	No
Lawrence, KA; Lenk, P; Quinn, RE, 2009	20	2	Empirical	No	No	No	No
Lichtenstein, BB; Plowman, DA, 2009	20	4	Empirical	Yes	No	No	No
Liden, RC; Wayne, SJ; Zhao, H; Henderson, D, 2008	19	2	Empirical	Yes	Yes	Yes	Yes
Ligon, GS; Hunter, ST; Mumford, MD, 2008	19	3	Empirical	No	No	No	No
Lipponen, J; Koivisto, S; Olkkonen, ME, 2005	16	4	Empirical	Yes	No	No	No
Livi, S; Kenny, DA; Albright, L; Pierro, A, 2008	19	2	Empirical	Yes	Yes	Yes	No
Luria, G, 2008	19	1	Empirical	Yes	Yes	No	No
Madera, JM; Smith, DB, 2009	20	2	Empirical	No	No	No	No
Marta, S; Leritz, LE; Mumford, MD, 2005	16	1	Empirical	Yes	No	No	No
Mehra, A; Smith, BR; Dixon, AL; Robertson, B, 2006	17	3	Empirical	Yes	Yes	No	No
Mio, JS; Riggio, RE; Levin, S; Reese, R, 2005	16	2	Empirical	No	No	No	No
Morgeson, FP; DeRue, DS, 2006	17	3	Empirical	Yes	No	No	No
Mumford, MD; Espejo, J; Hunter, ST; Bedell-Avers, KE; Eubanks, DL; Connelly, S, 2007	18	3	Empirical	Yes	Yes	No	No
Mumford, TV; Campion, MA; Morgeson, FP, 2007	18	2	Empirical	Yes	No	No	No
Murphy, SE; Ensher, EA, 2008	19	3	Empirical	No	No	No	No
Naidoo, LJ; Lord, RG, 2008	19	3	Empirical	No	No	No	No
Nemanich, LA; Keller, RT, 2007	18	1	Empirical	No	Yes	No	No
Nemanich, LA; Vera, D, 2009	20	1	Empirical	Yes	Yes	Yes	Yes
Osborn, RN; Marion, R, 2009	20	2	Empirical	Yes	Yes	No	No
Parameshwar, S, 2006	17	5	Empirical	No	No	No	No
Parameshwar, S, 2005	16	5	Empirical	Yes	Yes	Yes	No
Paunonen, SV; Lonnqvist, JE; Verkasalo, M; Leikas, S; Nissinen, V, 2006	17	5	Empirical	Yes	No	No	No
Pierro, A; Cicero, L; Bonaiuto, M; van Knippenberg, D; Kruglanski, AW, 2005	16	4	Empirical	No	No	No	No
Purvanova, RK; Bono, JE, 2009	20	3	Empirical	Yes	Yes	Yes	Yes
Rowe, WG; Cannella, AA; Rankin, D; Gorman, D, 2005	16	2	Empirical	Yes	Yes	No	No
Rowland, P; Parry, K, 2009	20	4	Empirical	Yes	Yes	Yes	No
Rowold, J; Heinitz, K, 2007	18	2	Empirical	No	No	No	No
Schaubroeck, J; Walumbwa, FO; Ganster, DC; Kepes, S, 2007	18	3	Empirical	Yes	Yes	Yes	No
Schriesheim, CA; Castro, SL; Zhou, XH; DeChurch, LA, 2006	17	1	Empirical	Yes	Yes	Yes	Yes
Schriesheim, CA; Wu, JB; Scandura, TA, 2009	20	4	Empirical	Yes	Yes	Yes	Yes
Seyranian, V; Bligh, MC, 2008	19	1	Empirical	No	No	No	No
Sosik, JJ, 2005	16	2	Empirical	Yes	Yes	No	No
Sosik, JJ; Dinger, SL, 2007	18	2	Empirical	Yes	No	No	No
Stouten, J; Tripp, TM, 2009	20	3	Empirical	No	No	No	No
Strang, SE; Kuhnert, KW, 2009	20	3	Empirical	No	No	No	No
Strange, JM; Mumford, MD, 2005	16	1	Empirical	No	No	No	No
Taggar, S; Ellis, R, 2007	18	2	Empirical	Yes	Yes	Yes	No
Tse, HHM; Dasborough, MT; Ashkanasy, NM, 2008	19	2	Empirical	Yes	Yes	Yes	No
Tsui, AS; Zhang, ZX; Wang, H; Xin, KR; Wu, JB, 2006	17	2	Empirical	No	No	No	No
Walumbwa, FO; Wu, C; Orwa, B, 2008	19	3	Empirical	Yes	Yes	Yes	No
Wansink, B; Payne, CR; van Ittersum, K, 2008	19	5	Empirical	No	No	No	No
Wasti, SA; Tan, HH; Brower, HH; Onder, C, 2007	18	5	Empirical	No	No	No	No
Wendt, H; Euwema, MC; van Emmerik, IJH, 2009	20	3	Empirical	Yes	Yes	Yes	Yes
Williams, EA; Pillai, R; Lowe, KB; Jung, D; Herst, D, 2009	20	2	Empirical	No	No	No	No
Yang, JX; Mossholder, KW; Peng, TK, 2009	20	2	Empirical	Yes	No	No	No
Yukl, G; Seifert, CF; Chavez, C, 2008	19	5	Empirical	No	No	No	No
Zhu, WC; Chew, IKH; Spangler, WD, 2005	16	1	Empirical	No	No	No	No

2. Progress in science

2.1. The historical aspect of the "historical–contextual superstructure"

Aside from their recognition of the importance of levels of analysis frameworks for future leadership research, Hunt and Dodge (2000) also suggest that collectively we avoid the déjà vu effect in which there is a persuasive repetition in research such that little advancement is evidenced over the decades. To combat this form of academic amnesia, they introduce the term "historical–contextual superstructure". By "historical", Hunt and Dodge (2000, p. 437) refer to "…evolutionary and paradigmatic antecedents…" in any scientific field. On one hand, this includes definitional, epistemological, and ontological foundations that act as the bedrock upon which more complex theoretical structures are built. On the other hand, it also subsumes the notion of: "…the evolution of leadership knowledge in both moving forward various approaches and attaining a better understand…"

Exactly how is this evolutionary development of leadership knowledge supposed to unfold? Hunt and Dodge (2000) offer two contrasting models. In the first model, they adapt features of a linear process described by Reichers and Schneider (1990) that includes three stages. In the first stage, *Introduction/Elaboration*, a concept is initially offered, explained and/or legitimized as a real phenomenon. In the second stage, *Evaluation/Augmentation*, in conjunction with supporting literature, critical reviews appear as well as moderating and/or mediating variables that are suggested as remedies for the criticisms. In the third stage, *Consolidation/Accommodation*, core definitions become much clearer, antecedents and consequences are well-known, and boundary conditions are specified in conjunction with follow-up meta-analyses.

The second model offered by Hunt and Dodge (2000) to explain the evolution of new knowledge is a form of a punctuated equilibrium model based on the work of Thomas Kuhn (1970). In this model, there are periods of relative equilibrium during which the research enterprise progresses relatively smoothly. Such periods, however, do not last, and the lulls during which little incremental improvement occurs are punctuated by radical reorientations in which large parts of the knowledge codex are questioned and/or rewritten. As such, this is a highly irregular, unpredictable model when compared to the relatively smooth transitions of the Reichers and Schneider (1990) stages.

Hunt and Dodge (2000) offer these two competing explanations for how science progresses not in the hopes of categorizing leadership efforts as one or the other model, but rather to underscore a more fundamental theme common to both models: namely, the concept of evolutionary development, be it linear or non-linear. For, in either case, there needs to be a chain of transmission and influence such that previous findings and results can inform future research efforts regardless of whether these efforts are, on one hand, extensions and refinements, or, on the hand, counterpoints, critiques, and antitheses (Bedeian & Hunt, 2006). To the extent that the evolutionary pedigree is traceable in a developing field of science, then the likelihood of academic amnesias is abated.

2.2. Historical traceability: An example using relationship/relational theory

A detailed reading of Hunt and Dodge (2000, p. 438) shows that Relational Theory, as portrayed in their first figure, is the central example that is used to illustrate a variety of their arguments. This concept is derived from Relationship Theory (Graen & Uhl-Bien, 1995), and both are predicated on earlier LMX research. Yet it may be difficult for future researchers, especially if they are not leadership specialists, to identify and locate these articles within a larger context. This is because computer-based bibliographic searches will reveal only minimal connections between these two articles despite the central theme common to both of them. In the Hunt and Dodge article the term "relational" (1) does not appear in their title, (2) appears once in the abstract, and (3) does not appear in the keywords. (The keyword field, which is supposed to contain metadata describing the article, can be found in the ISI Web of Science Citation tool, but not in the ABI/INFORM bibliographic database.) Thus, to the computerized researcher, this article is almost invisible with the exception of one minor clue: the term "relational" appears one time in the abstract as part of the phrase "relational leadership research stream." In contrast, in the Graen and Uhl-Bien predecessor article, the term "relational" (1) does not appear in the title, (2) does not appear in the abstract, and (3) does not appear in the keywords. Further, in the article the term "relational" appears in the text of the article only two times; these are in reference to the concept of relational demography.

The potential problem of "blindness" in tracing the evolution of Relational Leadership Theory in major articles of *LQ* is illustrated in Fig. 1.

The moniker Relationship Theory was introduced by Graen and Uhl-Bien (1995) in *LQ* as a variant and extension of LMX which in turn was derived from VDL (Dansereau et al., 1975). The concept is central to four more key LQ articles on this topic (Brower et al., 2000; Hunt & Dodge, 2000; Ford & Seers, 2006; Uhl-Bien, 2006). Note in Fig. 1, however, that even for such a simple citation tree, there are gaps in the branches in that both the Brower et al. and the Hunt and Dodge articles are cited only once out of two opportunities. One alternative explanation for this could be the fact that neither article uses "relational" as a keyword, and, as noted earlier, the Hunt and Dodge article does not have it in the title.

Relative to other articles in *LQ*, this situation is not unusual in that the majority of *LQ* articles have between three and six keywords that appear on the first page of the printed article in the abstract. (There is a substantial minority of articles that have no keywords.) The number of keywords listed in the abstract, however, is not the total number based on the ISI Web of Science search engine. This is because ISI has a special algorithm tool, Keyword Plus, which attempts to identify other relevant keywords through a computerized search and then automatically inserts them into the original keyword field as given by the

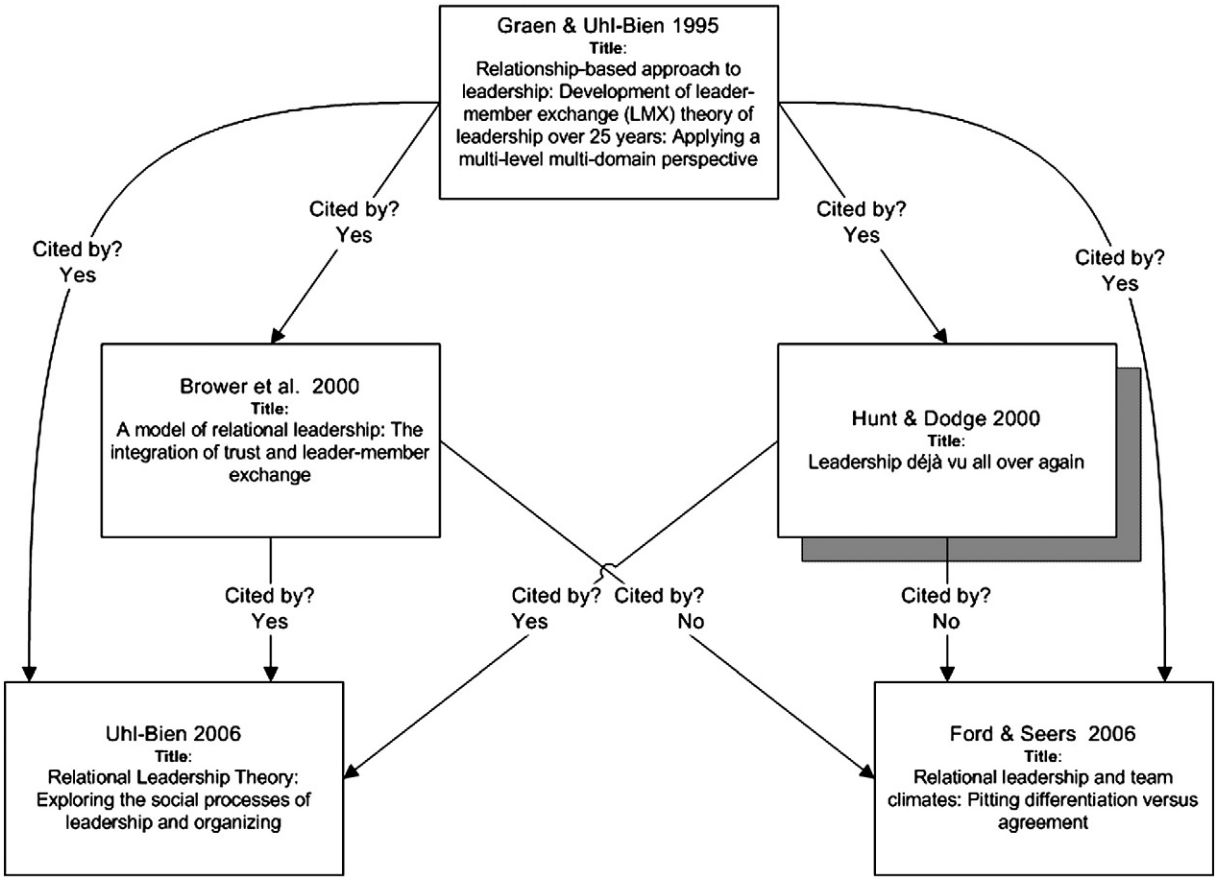

Fig. 1. Citation interconnections between key relational/relationship leadership articles in LQ.

author. For example, the Hunt and Dodge article has no keywords listed on the printed copy, but an ISI download shows the following: transformational leadership, grounded theory, perspective, management, and stock. This is not a very helpful list in light of the content of the article and the importance of Hunt's work in meso leadership (Gardner & Cogliser, 2009a). By comparison, the abstract for the hard copy version of the Yammarino et al. (2005) article lists five keywords: levels of analysis, theory building, theory testing, literature review, and multilevel theories. The ISI citation download for the Yammarino et al. (2005) article includes the previously mentioned five and appends the following eleven computer-generated terms: perceived organizational support, path-goal theory, authentic, transformational leadership, contingent reward leadership, computer-mediated groups, self-other agreement, US presidential vote, charismatic leadership, member exchange, and transactional leadership. While this list is far from perfect, it is an improvement, and, in the long run, it will subtly make this article more visible to researchers.

There is certainly some room for improvement by future authors when entitling their articles, explicating their abstracts, and especially when taking advantage of the use and function of keywords for computerized bibliography searches. However, simply adding more keywords, as shown in the previously mentioned examples, will not necessarily solve the visibility problem suggested earlier. This is because the key "locator" information required to find articles is not always a function of the current keywords. Rather, it is a function of the implicit taxonomical location of the article. In other words, how does one know if the Hunt and Dodge (2000) article is really a part of the "relationship-based leadership" space if no mention of it is made within its title, abstract or keywords? Clearly it is a member, but the external clues for placing into this conceptual space are limited. Thus, "location" in this sense means the ability to determine membership in a larger schema of similar articles so that, regardless of the relative completeness or incompleteness of the title and abstract, a satisfactory "address" can be identified. Having a more formal nomenclature system would allow the field to recognize, for example, that the five articles in Fig. 1 would be members of the same taxon despite the incompleteness of the titles, abstracts, or current keywords.

How can the field approach this problem of classification? From the field of biology we are familiar with the traditional taxonomy that includes: phylum, class, order, family, genus, and species. This long standing, traditional system is derived from work by Linnaeus, but it is not without its critics who are concerned with sundry anomalies that result from applying a taxonomy based on form and function rather than underlying characteristics (Forey, 2004). As an alternative, a branch of taxonomic sciences called cladistics has arisen (Sereno, 2009; Skelton, Smith, & Monks, 2009). Originally, it was based on

identifying common groupings based on RNA or DNA sequences rather than external forms. This hierarchical monophyletic emphasis (rather than phenetics) allows for common groupings based on ancestry that can be visualized using cladograms (Skelton et al., 2009). Alternatively, computational methods can be used to calculate clusters and relative node distances resulting in a figure known as a dendrogram (Bailey, 1994) or in various types of tree diagrams (e.g., additive or ultrametric) (Corter, 1996).

In applying traditional taxonomic or cladistics analysis to theories and knowledge (Lambe, 2007) and especially to leadership, agreement will need to be reached about how best to label our scientific work. By way of example, let us focus on how Relational Leadership Theory (RLT) was proposed as a superstructure concept by Hunt and Dodge (2000). In this article, the Relational research "river" encompassed five separate "streams": (1) Social Network Analysis (SNA), (2) Leader–Member Exchange (LMX) variants and extensions, (3) Lateral/Representational/Distributive leadership, (4) Collectivities, and (5) Systems. Hunt and Dodge (2000, p. 445) argue that all five approaches are on the forefront of leadership and they can make a unique contribution to understanding leadership phenomena. There is little debate about the attractiveness of such a broad approach; however, it is not clear that all five streams are really similar enough to warrant a position underneath the umbrella of RLT.

The specific problem with the classification of these five streams under RLT comes into focus when applying a multilevel framework. Starting with the core concepts of LMX-X (Leader–Member Exchange and Extensions), which is a relatively mature conceptual approach also identified by Yammarino et al. (2005) as one of their key 17 approaches, there is general agreement that: (1) the relationship of a supervisor and subordinate is of paramount concern, (2) there is some type of exchange process, (3) the perceptions of both parties should somehow converge, (4) the testing entity is the dyad, (5) the data collection entities are the individual members of the dyad, and (5) the traditional dependent variables (e.g., job performance, supervisory satisfaction, and/or turnover intent) can be explicitly measured. In contrast, Social Network Analysis (SNA), which is most often associated with an analytical technique based on communication frequency and network centrality (Freeman, 2004), does not directly imply the entity of theoretical concern (Knoke & Kuklinkski, 1982). It could be individuals, teams, or whole organizations. Likewise, the preferred data collection entity is also ambiguous, as is the underlying process of becoming "networked". Finally, the key concept of "network centrality" can be both an independent and dependent variable. This is not to say that SNA-based theories and techniques have not made valuable contributions to a wide range of organizational behavior research, but rather that they lack a number of specific structural features that would allow for an unambiguous classification under the umbrella of Relational Leadership. Instead, SNA might be better classified as part of a higher order domain that would need to be adapted to make it a leadership approach that would be equivalent to LMX-X. Similar problems exist with the attempted categorizations of Collectivities and Systems as parallel leadership approaches.

2.3. Proposal 1: Editorially assigned, taxonomically correct keywords

Much work in classifying leadership theories and knowledge remains to be done, starting with basic nomenclature rules. Ideally, a clearer taxonomy of theories should allow us to evaluate questions about (1) which theories are subsets of each other or equivalents of each other (i.e., is LMX-X really a subset of RLT, or are the two commensurate?) and (2) which entities and processes are contained within each theory. Therefore, the following is offered for deliberation.

Proposal 1. Aside from individual authors making improvements in their suggested keywords when submitting new articles, the *LQ* Editors could add to the author's keyword list by incorporating some form of the taxonomy suggested earlier and specifically include descriptive information about any multilevel aspects. This would not only encourage a structured discussion of the relation of various approaches and theories from a multilevel perspective, but it would also embolden editors to make explicit their classification schema. More importantly, it would substantially increase the future visibility of a number of worthwhile conceptual and/or empirical articles that might otherwise be significantly under-utilized.

3. Progress in resolving the stakeholder gap

3.1. The stakeholder gap

Hunt and Dodge (2000, p. 442) reiterate the issue of conflicting worldviews amongst all of the stakeholders who participate in the leadership research enterprise. Because there are differential benefits from different types of research, the agendas of practicing managers, journal editors, book publishers, instrumentation publishers, public funding agencies, private sector research sponsors, along with the various types of researchers and consultants who conduct the research, are not isomorphic. This issue has received mention in the academic press with two major types of gaps receiving the most attention.

The first stakeholder gap is the traditional and longstanding disconnect between practicing managers and academic scholars (Cascio, 2008). Aside from the practical realities of coordinating research between these two stakeholder groups, there are deeper epistemological issues in the pursuit of knowledge for theory versus the pursuit of knowledge for practice (McGuire, 1986; Van de Ven & Johnson, 2006), even to the point that a tilt towards the academic theory side in management journals has been detected and criticized (Hambrick, 2007). It is not surprising that executives do not routinely turn to academic research findings, and, in turn, academics rarely seek help from executives in defining research programs and questions.

There is a second type of researcher stakeholder gap that causes a subtle, insidious breach that can more directly induce various forms of academic amnesia. This is the gap between researchers who contribute to practitioner and bridge outlets versus those who contribute to academic journals (Hambrick, 2007). More specifically, research by Rynes and her colleagues (Rynes, Bartunek, & Daft, 2001; Rynes, Giluk, & Brown, 2007; Rynes, McNatt, & Bretz, 1999) has shown that there is very little overlap between high priority topics identified by HR academics and "translation" articles appearing in HR practitioner and bridge journals. ("Translation" articles are specifically written for a practitioner audience that are intended to make available the results of scientific research and help facilitate the translation process of moving knowledge into practice.) This type of disconnect has also been documented in the public administration literature (Bolton & Stolcis, 2003).

Again, as noted earlier, the drivers behind this gap are not just the practical impediments of coordinating project details of common research projects. Rather, there is a deeper epistemological issue separating the two camps; namely, the contextual orientation of the researcher (Blair & Hunt, 1986). At one extreme is the academic researcher who is concerned with identifying a phenomenon of interest wherever it can be found, and to then induce more universal conclusions and laws. This view has been labeled a "context-free" orientation. At the other extreme, a researcher who focuses on understanding the unique characteristics about the organization's setting, be it the organization's policies, rules, structures, or other features, that might attenuate or amplify the phenomenon of interest would be termed "context-specific". Note this orientation is not concerned so much with modeling all characteristics of a single setting, but instead it seeks to discover the specifics shared by similar organizations that would provide comparable contexts in which to find the hypothesized relationship.

3.2. Contextual aspects of the "historical–contextual superstructure": The multilevel approach

In the OB arena Cappelli and Sherer (1991) define context simply as factors surrounding a phenomena typically associated with levels of analysis. In the human development field, a similar definition of context (a term that is used synonymously with "environment") is offered as "…features outside of the growing person that potentially affect or are affected by the individual and his/her growth…" (Card, Little, & Bovaird, 2007, p. 2). Bronfenbrenner (1977) expands the notion of context in a manner that is compatible with Hunt and Dodge's use of "superstructure" (2000). Five ecological contexts (Bronfenbrenner, 1986) are offered in four nested levels: (1) the microsystem level composed of the target individual and the immediate social setting, (2) the mesosystem level that connects numerous microsystems, (3) the exosystem that contains larger informal or formal structures, and (4) overarching macrosystems that include political, cultural, and economic collectivities. The fifth system, time, termed the chronosystem, is also an important aspect of context, but is not nested within the preceding four levels, but stands apart from them. This view of the mesosystem as residing above the microsystem and below the macrosystem is compatible with Hunt's explanations (Gardner & Cogliser, 2009a; Osborn, Hunt, & Jauch, 2002). Regardless of the academic source of origination, properly operationalized contextual factors should improve our understanding of the boundary conditions under which a given set of findings should hold (Bamberger, 2008).

In OB the study of context has been linked with the study of levels of analysis, as described by Johns (2006) who provides many examples of the importance of the context in which a construct is operationalized. His first research design recommendation for appropriately operationalizing the context in which the construct is examined is to use cross-level techniques that rely upon multilevel approaches. Both Hitt et al. (2007) and Bamberger (2008) discuss how multilevel methods offer powerful tools for contextualizing research theories. While appealing at a conceptual level, the operationalization of this notion poses challenges, and a number of very different approaches have emerged (Little, Bovaird, & Card, 2007).

In order to create fully representative contextual frameworks, many have argued that a dialog between academics and practitioners will be required. The various approaches to context can be classified into the following categories:

Context as controls: In this category, an ideal study would collect data from a very large sample of individuals, for example, and at the same time collect descriptive information at the same individual level about the various groups, organizations, and other collectivities to which the individual belongs. In this way, there would be a one-to-one correspondence between the control variables and the variables of interest, such that a host of different contexts could be analyzed to determine if the relationship was universal across them. This view has also been termed meditation analysis (Iacobucci, 2008).

Context as redistributed scores: In one version of this category, also termed originally contextual analysis (Iverson, 1991), mean scores from a higher entity are redistributed to members of that entity and then analyzed at the lower level of analysis. Hence, a one-to-one correspondence is forced on the data. Statistical and technical problems have been identified with this version of contextual analysis (Markham, 1988).

Context as within entities (SLA): In this approach, for example, a group member's relative standing within the group, with the group being the contextual variable, can be expressed as a signed deviation score above or below the group mean, and it can be predictive of relevant outcomes. For example, Henderson, Wayne, Shore, Bormmer, and Tetrick (2008) used this type of relative positioning based on within-group scores to explain additional variance in the relationship of psychological contract with organizational citizenship behavior in developing a concept of Relative LMX (or RLMX). This approach has been labeled a "frog pond" effect (Firebaugh, 1980). It is also part of a logic of single level of analysis (SLA) tests in which the configuration effect of an entity on the relationship of two variables is examined (Dansereau et al., 1984) and a "parts", i.e. a within-group effect is identified.

Context as between entities (SLA): In this approach, the group is still the contextual focus, but rather than look for a within-group effect, as explained earlier, differences between groups are posited. An example of this was found by Markham (1988). In examining the relationship of merit pay raises and performance appraisal scores for the individuals in the study there was no significant relationship discovered between these two variables; however, at the whole supervisory group level, there were substantial differences between groups. The group averages were, in turn, positively correlated.

Context as nested multiple entities (MLA): With multiple entities being tested simultaneously in a Multiple Levels of Analysis (MLA) design, a variety of levels of analysis can be tested simultaneously. If all entities show the same pattern of significant relationships, then a cross-level condition has been found in which the relationship is found across all levels of the analysis. (For a complete description of all possible combinations when examining dyadic effects in leadership, see Gooty & Yammarino, in press.) If only the higher level entities show the relationship, then an emergent condition has been found. If only the lower level entities evidence a significant relationship, then it is termed level-specific. An empirical example of this was offered by Markham and McKee (1995) who used WABA to show that the relationship of absence standards with absenteeism rates is better modeled at the whole supervisory group level of analysis, and neither the individual nor the plant levels of analysis.

Context as nested boundary conditions (MRA): In this Multiple Relationship Analysis (MRA) (Dansereau et al., 1984) form of contextualization, multiple levels of hierarchically nested entities are again explicitly tested, but, unlike the more straightforward MLA approach described earlier where a level is either accepted or rejected, in this case the higher level entity becomes a boundary condition such that some relationships occur at the higher levels and other relationships occur at lower levels. An example is provided by Markham and Halverson (2002) who reported that for entire Army companies the relationship between task significance and psychological hostility appears conditional upon leadership climate. Under good leadership conditions, a lower level of analysis appears to be operative: *individual* reports of task significance were negatively related to psychological hostility, and there did not appear to be an effect based on whole companies. In contrast, under poor leadership conditions, the level of task significance in the *company as a whole* was negatively related to levels of psychological hostility at that same level.

Context in a fully articulated multilevel design In this category, an ideal study would collect data from a large population of individuals, for example, and at the same time collect the group membership information relevant to all of their nested levels of analysis. In this design, instead of a random sample of thousands of subjects scattered across a plethora of locations, each level of analysis could be explicitly tested. In a fully articulated multilevel design, all of the nested entities in Fig. 2 would be explicated and operationalized. However, given the potential number of nested levels as shown in Fig. 2, the population sizes associated with this type of study would be large, especially as additional levels of analysis are included.

In summary, this figure illustrates two points. First, as Johns (2006) notes, the issue of contextualization is really a question of multilevel analysis. Second, a researcher has choices about how explicitly levels of analysis will be tested as more of the nested entities in Fig. 2 are included in the multilevel research design. Regardless of the way in which these choices are made, there is little question the dealing with the issue of contextualization will become an imperative in future organizational research (Hitt et al., 2007).

3.3. Reducing the stakeholder gap using multilevel visualization: An RLT/LMX illustration

While practitioners and academics can increase their collaboration when designing better contextual operationalizations for future studies, this activity by itself will not fully resolve the stakeholder gap. Why? This is because, as noted in past work, there is an inherent difference in thinking styles and objectives between practitioners and researchers (Cohen, 2007). On one hand, most academics seek general trends or relationships that can be characterized by robust relationships between variables of interest. On the other hand, while practitioners may recognize that general principles are being sought, they have a different mandate. Instead, they must evaluate and understand all of the specific instances that might not fit the generalization of the academic. This is similar to the problem of large scale data analysis (Möller, Hamann, & Russell, 2009) in computerized information systems such as telephone billing where the general trend and the improvement of the flow of bills has to be evaluated, yet dedicated monitoring centers are required to investigate all individual errors and anomalies regardless how few errors may occur and regardless of how many millions of bills per month are generated. Just as scientific visualization can help these types of billing systems (Markham & Grove, 1998) with large scale visualization of data sets, so also can data visualization systems provide the ability to drill-down into individual cases. These same visualization principles also can assist in analyzing multilevel organization-specific data containing both entities and their associated data (Markham, 1998).

How can visualization techniques be applied to resolve the stakeholder gap? Consider the following extended example based up the Relational Leadership Theory/LMX literature. In the development of the LMX research stream a majority of initial attempts focused on obtaining reports from subordinates about the nature and quality of their relationships with their superior. In fact, this research approach using single source, follower-centric reports is still wide-spread (e.g., Kim et al., 2010). When referring to measures of LMX that are collected from *followers*, the naming convention[2] of F-LMX will be adopted. At the same time, the

[2] From a taxonomic perspective, it would be helpful to use acronyms for scales that reflect both the variable of interest and the entity of interest. Thus, "F-LMX" would indicate an LMX measure drawn from the follower point of view. "DM-LMX", which will be used later, would indicate that an LMX measure is being used that is based on a matched dyadic set of reports (DM) drawn from both followers and supervisors. "WG-LMX" could indicate an LMX measure based on whole groups, be it the average of the entire group or a signed deviation around the average.

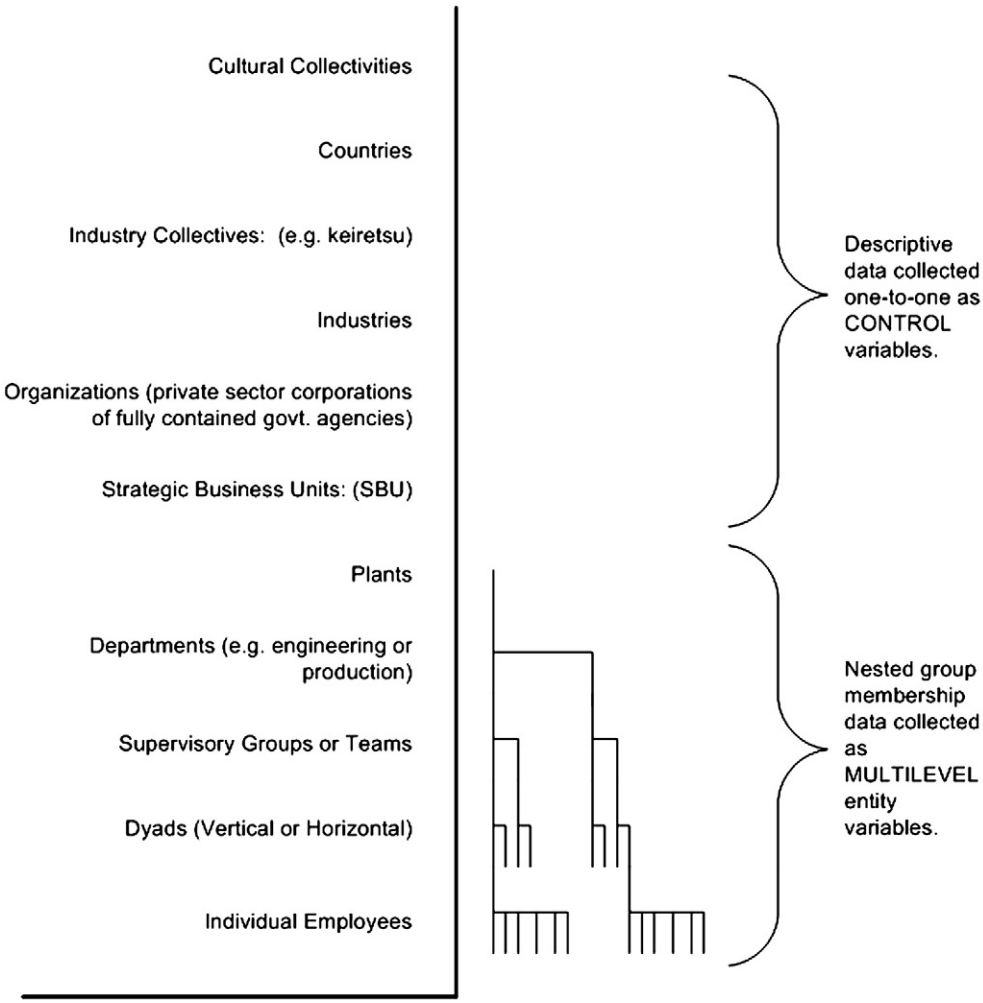

Fig. 2. Nested hierarchical levels of analysis: options for operationalizing contextual variables.

abbreviation *S-LMX* for reports obtained from the superior's of those followers will be used (cf., Cogliser, Schriesheim, Scandura, & Gardner, 2009). Typical distributions of scores from both sources can be seen in Fig. 3.

While both distributions are basically unimodal and subject to parametric statistical procedures, there has been a strong enticement to attempt to directly interpret these distributions. For example, by applying a median split to the F-LMX measure, it is tempting to label the lower scoring group as the "out-group" and the higher scoring group as the "in-group". Alternatively, these scores could be trichotomized as "out", "middle", and "in-group". The "bump" on the right side of the superior's distribution might be labeled as a leniency effect, and that subgroup's scores could be subject to a correction to compensate for this possible effect. The application of multilevel methods can help overcome problems without forcing an interpretation directly on these distributions.

Rather than be subjected to the usual problems associated with single source data, a number of researchers have suggested that (1) dyads might be the most potent level of analysis for studying LMX related phenomena, and (2) testing the convergence between supervisor and their subordinates' perceptions might prove revealing. With respect to the first point, a 25 year research track record pursued by Dansereau and his colleagues (Dansereau et al., 1995) found across many studies in many settings that the dyadic level of analysis, independent of supervisory group membership, seems to be the most potent level of analysis for detecting exchange relationships. (Hence, the monikers, Individualized Leadership, Individual Dyadic Theory (IDT), or Independent Dyadic Theory, have been used.) With respect to the second point, the issue of follower–supervisor agreement has been investigated by a number of researchers (Atwater, Ostroff, Yammarino, & Fleenor, 1998; Atwater & Yammarino, 1992; Yammarino & Atwater, 1997) who theorize that it is conceptually important, but who find that is it complex to model accurately. Hence, there is general agreement that some version of the three dimensional matrix in Fig. 4 is necessary, but there is no consensus on how best to analyze it. Previous efforts have ranged from creating difference scores for the matched reports, to using polynomial regressions and response surface methodologies, to partitioning this matrix formed by setting them at right angles into categories to detect main effects.

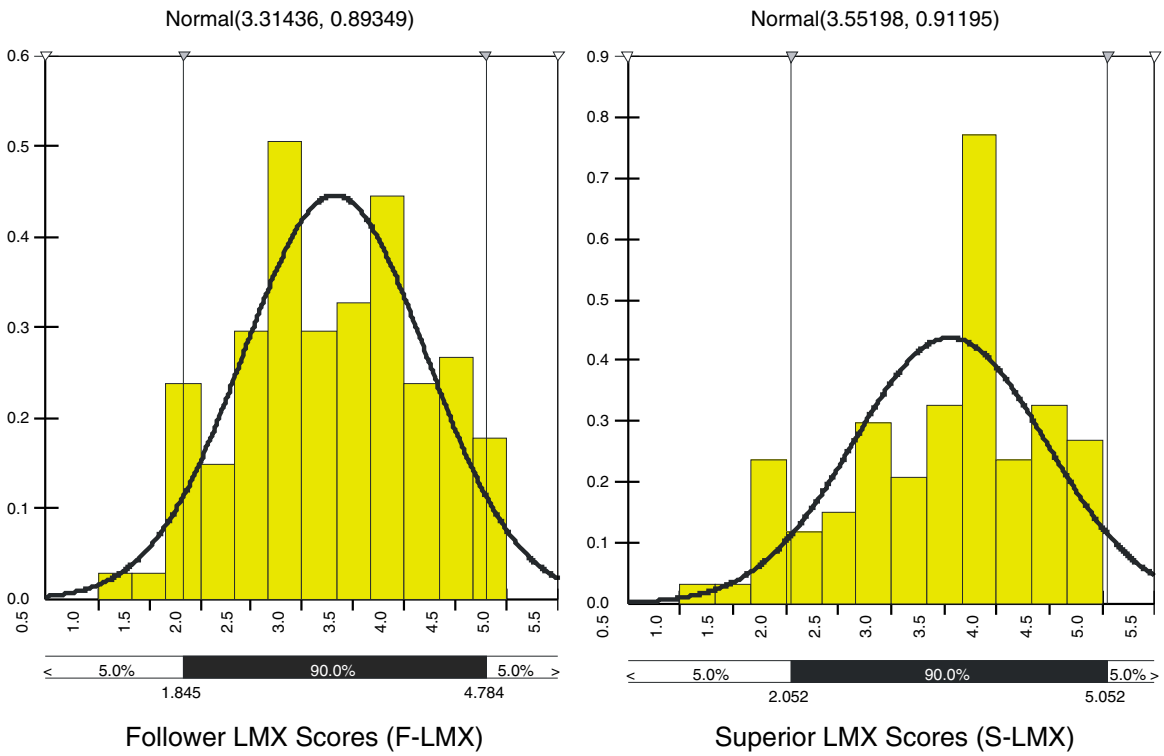

Fig. 3. Synthetic distributions of LMX exchange scores from followers' (F-LMX) and superiors' views (S-LMX).

It is the last approach that has been adapted by Cogliser et al. (2009) to address a fundamental conundrum in examining matched superior–subordinate reports. This enigma is the unexpectedly low correlation that has consistently been found between matched superior and subordinate LMX reports. Gerstner and Day (1997) note in their meta-analysis that the mean sample weighted correlation is only .29. Consistent with this figure, Cogliser et al. (2009) report a correlation of .27 for their 285 matched pairs of employees and supervisors. In a separate study, a non-significant correlation of .15 for similarly matched reports became

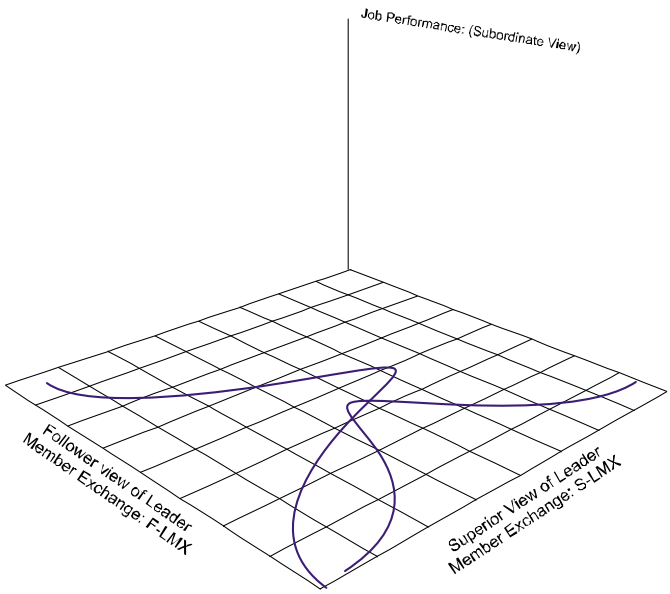

Fig. 4. The dyadic convergence matrix for the combination of follower (F-LMX) and superior (S-LMX) views of LMX with Z axis (follower view of job performance).

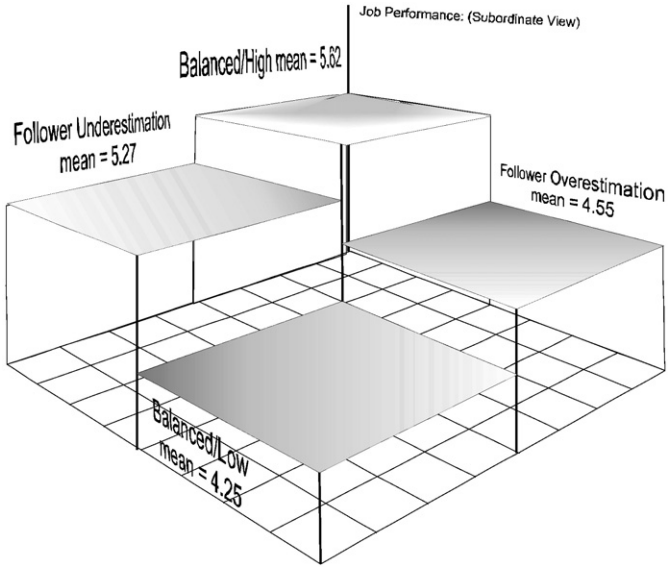

Fig. 5. Analysis alternative for congruence: four "balance" categories for matched dyadic reports from Cogliser et al. (2009).

significant (r = .46) when supervisory group effects were held constant (Markham, Dansereau, Alutto, & Dumas, 1983). To investigate this low correlation, Cogliser et al. categorized superior–subordinate pairs into one of four quadrants based on the congruence between their matched reports. If the S-LMX score is high (based on a median split), and the F-LMX score is low, then this is the Follower Underestimation condition. If the SMLX is low and the F-LMX score is also low, then this is a Balanced/Low category. If the F-LMX score is high and the SMLX score is low, then it is categorized as a Follower Overestimation condition. Finally, if both the F-LMX and SMLX reports are high, then this is considered a Balanced/High LMX condition. These categorizations are superimposed on the previous three dimensional leadership report matrix from Fig. 4 and extended in Fig. 5.

Fig. 5 also shows the primary results of this study (Cogliser et al., 2009) in which the Balanced/High condition shows the best average performance, and the Balanced/Low condition shows the worst average performance. Interestingly, the performance levels for both unbalanced conditions range between the two balanced conditions. Apparently, being in one of the mis-estimation conditions, especially the Follower Underestimation condition, is not necessarily detrimental to job performance. Note that while Cogliser et al. (2009) conducted a WABA analysis to rule out the possible explanation that the results could be explained by the configuration of supervisory groups, they did not use WABA to directly evaluate the dyadic configuration of the data.

To further elaborate on the type of situation presented by the Cogliser et al. (2009) study's marginal amount of congruence, which is simultaneously statistically significant, but disappointingly low from a practical point of view, Zhou and Schriesheim (2009) offer a number of theoretical explanations ranging from psychometric problems with the measurement scales to a host of possible boundary conditions or interactions. Their eighth proposition has to do with an alternative explanation based on a possible level of analysis effect. They suggest that the S-LMX measure might be configured as a dyad-within-group variable whereas the FLXM measure might operate at the independent dyad level. They recommend that a technique such as within and between entity analysis (WABA) (cf., Dansereau et al., 1984) be utilized to explore this idea.

Theorizing that the F-LMX and S-LMX measures might operate at two different levels of analysis might be overly complex and premature. This is because, first, so few LMX studies have explicitly test for levels of analysis. As noted by Schriesheim, Castro, Zhou, and Yammarino (2001), that at the time of publication, fewer than 10% of LMX studies had explicitly tested for levels of analysis, and none had examined the dyadic level. A second reason why the previously mentioned Proposition 8 might be premature is that there is mounting evidence of between-dyad results. In their 2001 study, they report results of three separate hetero-source data sets in which the LMX relationships appear to be at the between-dyad level. Further, a recent study found evidence of clear between-dyad effects when examining both LMX and values congruence (Markham et al., 2010).

Given that it might be premature to hypothesize complex levels of analysis tests of LMX over most straightforward tests, an alternative research technique can be run in parallel with traditional data collection and analysis efforts. Specially, the use of visualization techniques in organizational studies (Markham, 1998) is proffered for conducting exploratory research into dyadic, group, and plant LMX effects. This notion goes beyond traditional exploratory data analysis (EDA) (Hartwig & Dearing, 1979; Hoaglin, Mosteller, & Tukey, 1983) and beyond even Visual EDA (Young, Valero-Mora, & Friendly, 2006). This also stands apart from geospatial visualizations and process visualizations in management research (Basole, 2009; Eppler & Platts, 2009). Visual tools can be used for exploratory data and entity analysis (EDEA). In a nutshell, if a host of other fields, ranging from medicine to meteorology to architecture, can develop three dimensional, full color, high fidelity images that can be used for diagnostic and exploratory purposes, why should not management? In the next section, a simple 2-D and 3-D example of combined entity and data visualization will be presented.

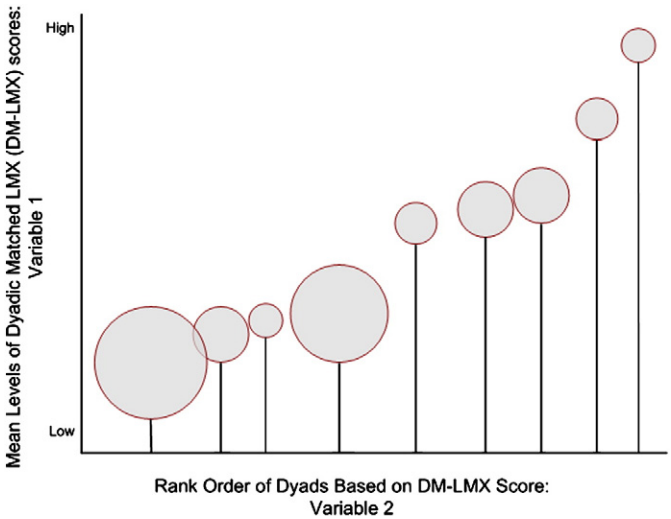

Fig. 6. Analysis alternative for dyadic display: 2-D bubble chart of synthetic dyadic DM-LMX scores.

Let us start with a 2-D bubble chart using matched S-LMX and FLXM scores. Instead of retaining them as individual scores, let us instead convert them into dyadic means and standard deviations. (Assume that minimal conditions for aggregation to the dyadic level have been met.) This new version of the scores is based on the same matched reports as before, and the new version will be labeled DM-LMX (for dyadic matched LMX reports). Given that each dyad has one mean score for the DM-LMX measure and one associated standard deviation, the dyads can be displayed as a simple bubble chart as shown in Fig. 6.

Note that in Fig. 6 the dyads have been sequenced on the X axis by rank order. The Y axis shows the metric for the DM-LMX measure. As a result, more of the higher scoring dyads are further to the right. Notice also that the size of the bubble is based on the standard deviation and has been subjected to a transformation factor for scaling purposes. The size of the bubble corresponds directly to the degree of congruence; smaller bubbles reflect greater congruence between a superior and subordinate. In this display there are dyads on the left side of the X axis that mutually report low LMX levels from both perspectives, hence the tight bubble. This corresponds to the Balanced/Low condition identified by Cogliser et al. (2009).

To upgrade this 2-D display, which can be easily generated in Microsoft Excel 2007, to a 3-D display is not as straightforward as it might appear. To do so requires that two conditions be met. First, another dyadic matched set of variables will need to be collected from supervisors and followers. (In this case, the job performance measure adapted by Cogliser et al. (2009) is recommended in that it can be adapted to reflect both the supervisor's perception of the subordinate's job performance and the subordinate's view point. These can be labeled as S-PERF [superior view of the subordinate's job performance] and F-PERF [the follower's view of his or her job performance]. The matched average score for the dyad will be DM-PERF.) Second, a third variable that is not a set of matched reports, such as intention to turnover, will be used for the Z axis. These enhancements are shown in Fig. 7.

Observe that each dyad is no longer restricted to being displayed using a circle. In fact, a dyad will only assume the shape of a circle if there is near-perfect convergence between the DM-LMX measure's standard deviation (DM-LMXsd) and the standard deviation of the job performance measure (DM-PERFsd). If either of these two standard deviations is larger, thereby indicating less convergence between the matched reports, then the shape of the entity will be an ellipse which will be stretched along either the X or Y axis depending on which measure shows less convergence. If both the DM-LMX and DM-PERF measures show high but equal mismatches, then a circle with a very large radius will be displayed. A large radius corresponds to a lower degree of congruence. Also observe that a surface on the upper plane of the matrix that connects all of the mean scores of the dyads (again, assuming that tests for aggregation have been met) can be calculated and displayed using Response Surface Methods (RSM) (Myers & Montgomery, 1995).

3.4. Moving from 2-D to 3-D interactive exploratory data analysis

In the next section, the advantages of moving to exploratory data analysis (Palocsay, Markham, & Markham, 2010) are outlined. A key feature of exploratory data analysis is the use of 3-D displays that can be constructed to be interactive; for example, the Z variable, in this case intent to turnover, can easily be switched to another, such as satisfaction or merit raise percentage. In this manner the display can be used to explore features of all the dyads in the database. By allowing the tool to be used interactively for exploratory analysis, new possibilities can be realized for investigating in what ways congruent, high performing dyads are different from other dyads. This display can be easily modified so that instead of displaying dyads as the entity of interest, it can show other entities, such as supervisory groups, production teams, or larger collectivities. Finally, if true cross-level effects (Gooty & Yammarino, in press) can be identified, then both dyads and supervisory groups can be displayed simultaneously with the matching dyads shown as elements within their matching groups.

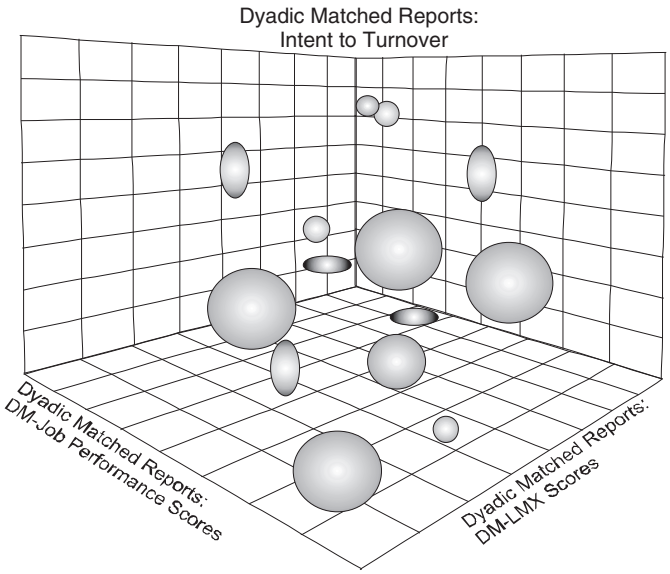

Fig. 7. Analysis alternative for dyadic data exploration: 3-D bubble chart of DM-LMX, DM-performance, with DM-turnover intent.

This type of visual display tool highlights a fundamental issue at the crux of the academic-practitioner gap. For academics, this 3-D display may have limited appeal because there is little perceived need for it; the statistical results from various multilevel analytical methods do a satisfactory job of summarizing the central tendencies in the data. For research-practitioners, however, this display could be very attractive because, while it does display the general relationship of interest which is captured by the upper plane of the response surface, it also allows for a detailed investigation of any specific dyad. From this examination process, questions will inevitably arise, especially if the data set has an initial LMX or Performance congruence correlation of about .25 to .30. Practitioners using this tool might inquire:

1. In a data set with a very moderate congruence correlation, such as the one used by Cogliser et al. (2009) where r = .27, is there enough of a dyadic effect to justify aggregating the matched reports so as to display dyadic means? (Notice that Cogliser et al. did use WABA at the supervisory group level to test that entity, but they did not conduct a dyadic analysis using WABA.)
2. How much discrepancy can there be between superior's and subordinate's matched LMX (DM-LMX) in order to identify them as “balanced”?
3. Given any moderate sized organization that could be used for this type of leadership study, there will undoubtedly be a mixture of Balanced versus Unbalanced dyads. What proportion of the dyads should be balanced (i.e. tightly coupled) in order to justify conducting a dyadic analysis and display?
4. Is it possible to examine an organization that is so dysfunctional that there is almost no congruence between F-LMX scores and S-LMX scores? Can a dyadic visualization tool still be used in such a situation?
5. Is it possible that authentic, balanced, high performing dyads are relatively rare, much like looking for pearls amongst oysters, and that our research strategies must be modified so as to be able to detect and document them?

Regardless of the answers to the previously mentioned questions (and many more like them which must await future research), the use of visual displays for exploratory entity investigations will facilitate the process of merging the agendas of leadership practitioners with those of academic researchers. For practitioners there will be a need to understand the anomalies and problems highlighted by displays that will require drill-down capability into individual cases. For the academic, as a deeper understanding is developed of how these dyadic anomalies occur, there will be a need to account for them within modified, larger theoretical frameworks. To summarize this section, the use of exploratory data and entity analysis (EDEA) through a variety of visualization tools and techniques is a promising arena for future research that will help practitioner and academics help close the stakeholder gap.

3.5. Proposal 2: One page research briefs and replication scoreboards

In line with Cascio (2008), it is possible that structural solutions that affect the rewards of researchers will be required to help bridge the practitioner/academic scholarship gaps, and that replication is essential to this bridging process. In support of the need for replication in management research, Hambrick (2007, p. 1350) notes:

> “…we must allow an accumulation of the requisite evidence. The only way to do this, of course, is to allow ample testing and replication. All other academic fields I am aware of—especially those that have professional constituencies that rely on a formal body of knowledge—attach significant value to straightforward tests of previously proposed theories, ideas, and

operating mechanisms. We in management, however, are so riveted on new and revised theories, and so dismissive of simple generation of facts and evidence, that our revealed ethos is that we care much more about what's fresh and novel than about what's right."

Therefore, the following proposal is offered for consideration.

Proposal 2. In order to facilitate the accumulation and integration of leadership studies in targeted areas, the *LQ* Board should create a new category of peer-reviewed article: the replication study. A replication study would report using a simple one to two page format the results of using a pre-defined protocol (i.e. specified measures, entities, descriptive contextual variables, etc.). Authors would be encouraged to share all results regardless of whether there were positive or negative findings. More importantly, researchers would report all of the statistical information for the covariance theorem's components so that future researchers would have the building blocks for different multilevel analytical systems. Finally, authors would also report from a pre-determined list of descriptive information about contextual control variables. (This would include information such as the country in which the study took place, industry, etc.) In order to better utilize the previously mentioned replication studies, the *LQ* Board will summarize the accumulated findings and periodically report out a summary of results using some form of a Replication Matrix as suggested in Fig. 8. The dimensions in Fig. 8 would be agreed upon by the *LQ* Board; however, researchers should provide additional contextual descriptors for potential future revisions of the Replication Matrix. The dimensions themselves, especially position power, are consistent with the research literature in leadership (Schriesheim, Tepper, & Tetrault, 1994, p. 571), and are suggested by way of example. The construct of "supervisory role position power" refers to the ability of the supervisor to assign performance appraisal scores, to give merit raises or bonuses, and to fire employees. In a similar vein, Replication Matrices for other leadership research questions can also be launched and maintained if it proves to be a useful accumulation and reporting technique.

While the previously mentioned proposal will require an unprecedented amount of coordination and communication, it would have a number of distinct advantages that merits its consideration. These include:

1. It would stimulate much greater dialog between practitioners and academics to ensure that the contextual control dimensions suggested in Fig. 8 are the most salient ones from both perspectives.

Administration Protocol: "Dyadic Leader 001"

	Public Sector				Private Sector			
	Wage		Salaried		Wage		Salaried	
	Supervisory Power: Hi	Supervisory Power: Low	Supervisory Power: Hi	Supervisory Power: Low	Supervisory Power: Hi	Supervisory Power: Low	Supervisory Power: Hi	Supervisor y Power: Low
North American	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null
European	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null
Latin American	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null
Middle Eastern	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null
Indian	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null
Oriental	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null	# Plus / # Null

Fig. 8. Suggested Replication Matrix with boundary conditions dimensions for leadership exchange studies.

2. It would make it relatively easy for a wider group of researchers to contribute to the field in that they would be able to piggy-back the measures and methods in the required protocol on top of their current leadership studies without undue effort. Less time and effort in reinventing and tweaking theories to explain all possible findings would make it easier to close the stakeholder gap and to accumulate "…facts and evidence…" (cf., Hambrick, 2007) in a relatively short timeframe.
3. It would make this type of empirical contribution more attractive to researchers because there would be some small but tangible rewards in the form of one-page publications for participating in the replication enterprise.
4. It would provide clearer guidelines to practitioners based upon the concrete contextual conditions in the Replication Matrix as to when a relationship is expected to hold or not hold.
5. It would encourage more discussion between practitioners and academics when analyzing the issue how anomalous results of small scale studies might be interpreted.
6. It would provide a means for attracting much needed international participation (Tsui, 2007) so as to more completely fill out the cultural/country groups the Replication Matrix.
7. It would provide a mechanism for future meta-analyses researchers to access far more reliable and rich information upon which to base their studies (Gerstner & Day, 1997), especially with respect to special problems in conducting meta-analysis with multilevel questions (Ostroff & Harrison, 1999).
8. It would establish *Leadership Quarterly* in a unique position amongst management journals in terms of taking positive action to close the practitioner–scholar gap and to provide an integrative service for its readership.
9. It would provide long-term future benefits to new generations of leadership researchers who could use these findings to make significant new advances.

4. Conclusion

Given the length and complexity of the arguments that have been tendered, there will be no recapitulation of the entire rationale and literature supporting them. Instead, for the sake of brevity, the following points are proposed by way of summary and conclusion for each of stakeholder groups (editors, reviewers, authors, practitioners, and readers):

- There is an overall, gradual improvement in the concern with and deployment of multilevel methods, techniques, and analysis in the main body of literature in *LQ.* Given the wide ranging aspects of this corpus above and beyond empirical tests of specific leadership schools or approaches, this trend is encouraging and consonant with the "revolutionary" vociferations issued by Hunt and Dodge (2000), Hitt et al. (2007), and Bamberger (2008).
- There is a need for better taxonomic classification of our theories and superstructure theories to help prevent academic amnesia. This is a task for both editorial boards and authors who must struggle to resist the temptation to use only the last few years of articles when conducting their literature searches.
- There is a need to improve the keyword metadata associated with our articles to strengthen our ability to better locate and utilize their findings. Again, both editorial boards and authors can expand the use of keyword metadata so that future generations of scholars will be better able to electronically find current research.
- There is a coming convergence between the literature pertaining to contextualization and to multilevel methodology as common ground will be found for more accurate modeling of data, relationships, and their associated entities.
- There is a need for replication studies conducted within a level of analysis framework so as to dampen the déjà vu effect in leadership research. This movement will open greater opportunities between corporations and researchers because replication studies will need to be anchored in well-understood settings. This movement will also provide more opportunities for publication as smaller, tighter replication studies will be needed to accumulate across boundary conditions.
- Visualization techniques can be coupled with entity and data analysis to help bridge the stakeholder gap. The use of visualization techniques will also make clearer the linkage between general research findings and specific organizational applications.

In conclusion, *Leadership Quarterly* is in a unique historical position to alter and improve the course of leadership research in the future through the consideration and adoption of some form of the proposals offered herein. This will require a conscious effort on the part of all stakeholders, but especially editors and authors, to prevent a potential increase in the amount of academic amnesia as our fields become increasingly complex and large.

References[3]

*Ahn, D. (2008). The politics of royal education: Xenophon's Education of Cyrus in early eighteenth-century Europe. *Leadership Quarterly*, *19*, 439—452.
*Allison, S. T., Eylon, D., Beggan, J. K., & Bachelder, J. (2009). The demise of leadership: Positivity and negativity biases in evaluations of dead leaders. *Leadership Quarterly*, *20*, 115—129.
*Anderson, D. W., Krajewski, H. T., Goffin, R. D., & Jackson, D. N. (2008). A leadership self-efficacy taxonomy and its relation to effective leadership. *Leadership Quarterly*, *19*, 595—608.
*Antonakis, J., Ashkanasy, N. M., & Dasborough, M. T. (2009). Does leadership need emotional intelligence? *Leadership Quarterly*, *20*, 247—261.

[3] References denoted with an "*"are members of the set of articles used for this analysis (see Table 1).

*Arvey, R. D., Rotundo, M., Johnson, W., Zhang, Z., & McGue, M. (2006). The determinants of leadership role occupancy: Genetic and personality factors. *Leadership Quarterly*, *17*, 1—20.
*Atwater, L., & Carmeli, A. (2009). Leader–member exchange, feelings of energy, and involvement in creative work. *Leadership Quarterly*, *20*, 264—275.
Atwater, L. E., & Yammarino, F. J. (1992). Does self-other agreement on leadership perceptions moderate the validity of leadership and performance predictions? *Personnel Psychology*, *45*, 141—164.
Atwater, L. E., Ostroff, C., Yammarino, F. J., & Fleenor, J. W. (1998). Self-other agreement: Does it really matter? *Personnel Psychology*, *51*, 577—598.
*Avolio, B. J., Rotundo, M., & Walumbwa, F. O. (2009). Early life experiences as determinants of leadership role occupancy: The importance of parental influence and rule breaking behavior. *Leadership Quarterly*, *20*, 329—342.
Bailey, K. D. (1994). *Typologies and taxonomies: An introduction to classification techniques.* Thousand Oaks, CA: Sage Publications.
*Balkundi, P., & Kilduff, M. (2005). The ties that lead: A social network approach to leadership. *Leadership Quarterly*, *16*, 941—961.
*Balkundi, P., & Kilduff, M. (2006). The ties that lead: A social network approach to leadership. *Leadership Quarterly*, *17*, 419—439.
*Ballinger, G. A., Schoorman, F. D., & Lehman, D. W. (2009). Will you trust your new boss? The role of affective reactions to leadership succession. *Leadership Quarterly*, *20*, 219—232.
Bamberger, P. (2008). Beyond contextualization: Using context theories to narrow the micro–macro gap in management research. *Academy of Management Journal*, *51*, 839—846.
*Bartone, P. T., Snook, S. A., Forsythe, G. B., Lewis, P., & Bullis, R. C. (2007). Psychosocial development and leader performance of military officer cadets. *Leadership Quarterly*, *18*, 490—504.
Basole, R. C. (2009). Visualization of interfirm relations in a converging mobile ecosystem. *Journal of Information Technology*, *24*, 144—159.
*Bedeian, A. G., & Hunt, J. G. (2006). Academic amnesia and vestigial assumptions of our forefathers. *Leadership Quarterly*, *17*, 190—205.
*Bedell-Avers, K., Hunter, S. T., Angie, A. D., Eubanks, D. L., & Mumford, M. D. (2009). Charismatic, ideological, and pragmatic leaders: An examination of leader–leader interactions. *Leadership Quarterly*, *20*, 299—315.
*Bedell-Avers, K. E., Hunter, S. T., & Mumford, M. D. (2008). Conditions of problem-solving and the performance of charismatic, ideological, and pragmatic leaders: A comparative experimental study. *Leadership Quarterly*, *19*, 89—106.
*Benefiel, M. (2005). The second half of the journey: Spiritual leadership for organizational transformation. *Leadership Quarterly*, *16*, 723—747.
*Berson, Y., Nemanich, L. A., Waldman, D. A., Galvin, B. M., & Keller, R. T. (2006). Leadership and organizational learning: A multiple levels perspective. *Leadership Quarterly*, *17*, 577—594.
*Black, J. A., Oliver, R. L., Howell, J. P., & King, J. P. (2006). A dynamic system simulation of leader and group effects on context for learning. *Leadership Quarterly*, *17*, 39—56.
Blair, J. D., & Hunt, J. G. (1986). Getting inside the head of the management researcher one more time: Context-free and context-specific orientations in research. *Journal of Management*, *12*, 147—166.
*Bligh, M. C., & Hess, G. D. (2007). The power of leading subtly: Alan Greenspan, rhetorical leadership, and monetary policy. *Leadership Quarterly*, *18*, 87—104.
*Bligh, M. C., & Kohles, J. C. (2009). The enduring allure of charisma: How Barack Obama won the historic 2008 presidential election. *Leadership Quarterly*, *20*, 483—492.
*Bluedorn, A. C., & Jaussi, K. S. (2008). Leaders, followers, and time. *Leadership Quarterly*, *19*, 654—668.
*Boal, K. B., & Schultz, P. L. (2007). Storytelling, time, and evolution: The role of strategic leadership in complex adaptive systems. *Leadership Quarterly*, *18*, 411—428.
*Boies, K., & Howell, J. A. (2006). Leader–member exchange in teams: An examination of the interaction between relationship differentiation and mean LMX in explaining team-level outcomes. *Leadership Quarterly*, *17*, 246—257.
*Boje, D. M., & Rhodes, C. (2006). The leadership of Ronald McDonald: Double narration and stylistic lines of transformation. *Leadership Quarterly*, *17*, 94—103.
*Bolino, M. C., & Turnley, W. H. (2009). Relative deprivation among employees in lower-quality leader–member exchange relationships. *Leadership Quarterly*, *20*, 276—286.
Bolton, M. J., & Stolcis, G. B. (2003). Ties that do not bind: Musings on the specious relevance of academic research. *Public Administration Review*, *63*, 626—630.
*Bono, J. E., & Ilies, R. (2006). Charisma, positive emotions and mood contagion. *Leadership Quarterly*, *17*, 317—334.
Bronfenbrenner, U. (1977). Toward an experimental ecology of human-development. *American Psychologist*, *32*, 513—531.
Bronfenbrenner, U. (1986). Ecology of the family as a context for human-development: Research perspectives. *Developmental Psychology*, *22*, 723—742.
*Brouer, R. L., Duke, A., Treadway, D. C., & Ferris, G. R. (2009). The moderating effect of political skill on the demographic dissimilarity — Leader–member exchange quality relationship. *Leadership Quarterly*, *20*, 61—69.
Brower, H. H., Schoorman, F. D., & Tan, H. H. (2000). A model of relational leadership: The integration of trust and leader-member exchange. *Leadership Quarterly*, *11*, 227—250.
*Brown, D. J., & Keeping, L. M. (2005). Elaborating the construct of transformational leadership: The role of affect. *Leadership Quarterly*, *16*, 245—272.
*Brown, M. E., & Trevino, L. (2006). Ethical leadership: A review and future directions. *Leadership Quarterly*, *17*, 595—616.
*Burke, C. S., Sims, D. E., Lazzara, E. H., & Salas, E. (2007). Trust in leadership: A multi-level review and integration. *Leadership Quarterly*, *18*, 606—632.
*Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *Leadership Quarterly*, *17*, 288—307.
*Cabrera-Suarez, K. (2005). Leadership transfer and the successor's development in the family firm. *Leadership Quarterly*, *16*, 71—96.
*Calogero, R. M., & Mullen, B. (2008). About face: Facial prominence of George W. Bush in political cartoons as a function of war. *Leadership Quarterly*, *19*, 107—116.
*Campbell, R. A. (2008). Leadership succession in early Islam: Exploring the nature and role of historical precedents. *Leadership Quarterly*, *19*, 426—438.
*Campbell, S. M., Ward, A. J., Sonnenfeld, J. A., & Agle, B. R. (2008). Relational ties that bind: Leader–follower relationship dimensions and charismatic attribution. *Leadership Quarterly*, *19*, 556—568.
Cappelli, P., & Sherer, P. D. (1991). The missing role of context in OB: The need for a meso-level approach. In L. L. Cummings & B.M. Staw (Eds.), *Research in organizational behavior*, *Vol. 13*, Greenwich, CT: JAI Press.
Card, N. A., Little, T. D., & Bovaird, J. A. (2007). Modeling ecological and contextual effects in longitudinal studies of human development. In T. D. Little, J. A. Bovaird, & N. A. Card (Eds.), *Modeling contextual effects in longitudinal studies* (pp. 1—11). Mahwah, NJ: Lawrence Erlbaum Associates.
*Carmeli, A., & Halevi, M. Y. (2009). How top management team behavioral integration and behavioral complexity enable organizational ambidexterity: The moderating role of contextual ambidexterity. *Leadership Quarterly*, *20*, 207—218.
*Carmeli, A., & Schaubroeck, J. (2006). Top management team behavioral integration, decision quality, and organizational decline. *Leadership Quarterly*, *17*, 441—453.
*Carmeli, A., & Schaubroeck, J. (2007). The influence of leaders' and other referents' normative expectations on individual involvement in creative work. *Leadership Quarterly*, *18*, 35—48.
Cascio, W. F. (2008). To prosper, organizational psychology should… bridge application and scholarship. *Journal of Organizational Behavior*, *29*, 455—468.
*Cha, S. E., & Edmondson, A. C. (2006). When values backfire: Leadership, attribution, and disenchantment in a values-driven organization. *Leadership Quarterly*, *17*, 57—78.
*Chen, G. L., Trevino, L. K., & Hambrick, D. C. (2009). CEO elitist association: Toward a new understanding of an executive behavioral pattern. *Leadership Quarterly*, *20*, 316—328.
Cogliser, C. C., Schriesheim, C. A., Scandura, T. A., & Gardner, W. L. (2009). Balance in leader and follower perceptions of leader–member exchange: Relationships with performance and work attitudes. *Leadership Quarterly*, *20*, 452—465.
Cohen, D. J. (2007). The very separate worlds of academic and practitioner publications in human resource management: Reasons for the divide and concrete solutions for bridging the gap. *Academy of Management Journal*, *50*, 1013—1019.
*Cole, M. S., & Bedeian, A. G. (2007). Leadership consensus as a cross-level contextual moderator of the emotional exhaustion–work commitment relationship. *Leadership Quarterly*, *18*, 447—462.
*Collinson, D. (2006). Rethinking followership: A post-structuralist analysis of follower identities. *Leadership Quarterly*, *17*, 179—189.
*Cooper, C. D., Scandura, T. A., & Schriesheim, C. A. (2005). Looking forward but learning from our past: Potential challenges to developing authentic leadership theory and authentic leaders. *Leadership Quarterly*, *16*, 475—493.

Corter, J. E. (1996). Tree models of similarity and association. CA: Thousand Oaks, Sage.
*Cronin, T. E. (2008). "All the world's a stage…" acting and the art of political leadership. *Leadership Quarterly*, *19*, 459—468.
*Crossan, M., Vera, D., & Nanjad, L. (2008). Transcendent leadership: Strategic leadership in dynamic environments. *Leadership Quarterly*, *19*, 569—581.
Dansereau, F., Alutto, J. A., Nachman, S. A., Alkelabi, S. A., Yammarino, F. J., Newman, J., et al. (1995). Individualized leadership: A new multiple-level approach. *Leadership Quarterly*, *6*, 413—450.
Dansereau, F., Alutto, J. A., & Yammarino, F. J. (1984). *Theory testing in organizational behavior: The varient approach.* Englewood Cliffs, NJ: Prentice-Hall.
Dansereau, F., Graen, G., & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: Longitudinal investigation of the role making process. *Organizational Behavior and Human Performance*, *13*, 46—78.
Dansereau, F., & Yammarino, F. (Eds.). (1998). *Leadership: The multiple-level approaches (Part B: Contemporary and alternative)*, *Vol. 24*, Stamford, CT: JAI Press.
Dansereau, F., & Yammarino, F. J. (Eds.). (1998). *Leadership: The multiple-level approaches (Part A: Classical and new wave)*, *Vol. 24*, Stamford, CT: JAI Press.
*Dansereau, F., & Yammarino, F. J. (2006). Is more discussion about levels of analysis really necessary? When is such discussion sufficient. *Leadership Quarterly*, *17*, 537—552.
*Dasborough, M. T. (2006). Cognitive asymmetry in employee emotional reactions to leadership behaviors. *Leadership Quarterly*, *17*, 163—178.
*Dasborough, M. T., Ashkanasy, N. M., Tee, E. Y. J., & Tse, H. H. M. (2009). What goes around comes around: How meso-level negative emotional contagion can ultimately determine organizational attitudes toward leaders. *Leadership Quarterly*, *20*, 571—585.
*De Cremer, D. (2006). Affective and motivational consequences of leader self-sacrifice: The moderating effect of autocratic leadership. *Leadership Quarterly*, *17*, 79—93.
*De Hoogh, A. H. B., & Den Hartog, D. N. (2008). Ethical and despotic leadership, relationships with leader's social responsibility, top management team effectiveness and subordinates' optimism: A multi-method study. *Leadership Quarterly*, *19*, 297—311.
*De Hoogh, A. H. B., Den Hartog, D. N., Koopman, P. L., Thierry, H., Van den Berg, P. T., Van der Weide, J. G., et al. (2005). Leader motives, charismatic leadership, and subordinates' work attitude in the profit and voluntary sector. *Leadership Quarterly*, *16*, 17—38.
*Dent, E. B., Higgins, A. E., & Wharff, D. M. (2005). Spirituality and leadership: An empirical review of definitions, distinctions, and embedded assumptions. *Leadership Quarterly*, *16*, 625—653.
*Dickson, M. W., Resick, C. J., & Hanges, P. J. (2006). Systematic variation in organizationally-shared cognitive prototypes of effective leadership based on organizational form. *Leadership Quarterly*, *17*, 487—505.
*Dionne, S. D., & Dionne, P. J. (2008). Levels-based leadership and hierarchical group decision optimization: A simulation. *Leadership Quarterly*, *19*, 212—234.
*Drath, W. H., McCauley, C. D., Palus, C. J., Van Velsor, E., O'Connor, P. M. G., & McGuire, J. B. (2008). Direction, alignment, commitment: Toward a more integrative ontology of leadership. *Leadership Quarterly*, *19*, 635—653.
*Duchon, D., & Plowman, D. A. (2005). Nurturing the spirit at work: Impact on work unit performance. *Leadership Quarterly*, *16*, 807—833.
*Dyer, N. G., Hanges, P. J., & Hall, R. J. (2005). Applying multilevel confirmatory factor analysis techniques to the study of leadership. *Leadership Quarterly*, *16*, 149—167.
*Eagly, A. H. (2005). Achieving relational authenticity in leadership: Does gender matter? *Leadership Quarterly*, *16*, 459—474.
*Einarsen, S., Aasland, M. S., & Skogstad, A. (2007). Destructive leadership behaviour: A definition and conceptual model. *Leadership Quarterly*, *18*, 207—216.
*Ensley, M. D., Hmieleski, K. M., & Pearce, C. L. (2006). The importance of vertical and shared leadership within new venture top management teams: Implications for the performance of startups. *Leadership Quarterly*, *17*, 217—231.
*Epitropaki, O., & Martin, R. (2005). The moderating role of individual differences in the relation between transformational/transactional leadership perceptions and organizational identification. *Leadership Quarterly*, *16*, 569—589.
Eppler, M. J., & Platts, K. W. (2009). Visual strategizing: The systematic use of visualization in the strategic-planning process. *Long Range Planning*, *42*, 42—74.
*Ferris, G. R., Zinko, R., Brouer, R. L., Buckley, M. R., & Harvey, M. G. (2007). Strategic bullying as a supplementary, balanced perspective on destructive leadership. *Leadership Quarterly*, *18*, 195—206.
Firebaugh, G. (1980). Groups as context and frog ponds. In K. H. Roberts & L. Burstein (Eds.), *Issues in aggregation*. San Francisco: Jossey-Bass.
*Foldy, E. G., Goldman, L., & Ospina, S. (2008). Sensegiving and the role of cognitive shifts in the work of leadership. *Leadership Quarterly*, *19*, 514—529.
*Ford, L. R., & Seers, A. (2006). Relational leadership and team climates: Pitting differentiation versus agreement. *Leadership Quarterly*, *17*, 258—270.
Forey, P. L. (2004). Milestones in systematics. London: CRC Press: Taylor & Francis.
*Foti, R. J., Knee, R. E., & Backert, R. S. G. (2008). Multi-level implications of framing leadership perceptions as a dynamic process. *Leadership Quarterly*, *19*, 178—194.
Freeman, L. C. (2004). *The development of Social Network Analysis: A study in the sociology of science.* Vancouver, Canada: Empirical Press.
*Fry, L. W., Vitucci, S., & Cedillo, M. (2005). Spiritual leadership and army transformation: Theory, measurement, and establishing a baseline. *Leadership Quarterly*, *16*, 835—862.
*Furst, S. A., & Reeves, M. (2008). Queens of the hill: Creative destruction and the emergence of executive leadership of women. *Leadership Quarterly*, *19*, 372—384.
*Gardner, W. L., Avolio, B. J., Luthans, F., May, D. R., & Walumbwa, F. (2005). "Can you see the real me?" A self-based model of authentic leader and follower development. *Leadership Quarterly*, *16*, 343—372.
Gardner, W. L., & Cogliser, C. C. (2009a). Meso-modeling of leadership: Following James G. (Jerry) Hunt's lead in integrating micro- and macro-perspectives of leadership. *Leadership Quarterly*, *20*, 493—500.
*Gardner, W. L., Fischer, D., & Hunt, J. G. (2009). Emotional labor and leadership: A threat to authenticity. *Leadership Quarterly*, *20*, 466—482.
Gerstner, C. R., & Day, D. V. (1997). Meta-analytic review of Leader–Member Exchange Theory: Correlates and construct issues. *Journal of Applied Psychology*, *82*, 827—844.
*Giambatista, R. C., Rowe, W. G., & Riaz, S. (2005). Nothing succeeds like succession: A critical review of leader succession literature since 1994. *Leadership Quarterly*, *16*, 963—991.
*Giessner, S. R., van Knippenberg, D., & Sleebos, E. (2009). License to fail? How leader group prototypicality moderates the effects of leader performance on perceptions of leadership effectiveness. *Leadership Quarterly*, *20*, 434—451.
*Goethals, G. R. (2008). Imagining Ulysses S. Grant: Sifting through the shifting sands of conventional wisdom. *Leadership Quarterly*, *19*, 488—500.
*Golden, T. D., & Veiga, J. F. (2008). The impact of superior–subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *Leadership Quarterly*, *19*, 77—88.
Gooty, J. & Yammarino, F. J. in press. Dyads in organizational research: Conceptual issues and multi-level analyses. *Organizational Research Methods*. doi: 10.1177/1094428109358271
Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, *6*, 219—247.
*Guastello, S. J. (2007). Non-linear dynamics and leadership emergence. *Leadership Quarterly*, *18*, 357—369.
Hambrick, D. C. (2007). The field of management's devotion to theory: Too much of a good thing? *Academy of Management Journal*, *50*, 1346—1352.
*Hanges, P. J., & Dickson, M. W. (2006). Agitation over aggregation: Clarifying the development of and the nature of the GLOBE scales. *Leadership Quarterly*, *17*, 522—536.
*Hannah, S. T., & Lester, P. B. (2009). A multilevel approach to building and leading learning organizations. *Leadership Quarterly*, *20*, 34—48.
*Hannah, S. T., Avolio, B. J., Luthans, F., & Harms, P. D. (2008). Leadership efficacy: Review and future directions. *Leadership Quarterly*, *19*, 669—692.
*Hansen, H., Ropo, A., & Sauer, E. (2007). Aesthetic leadership. *Leadership Quarterly*, *18*, 544—560.
*Harris, K. J., Kacmar, K. M., & Zivnuska, S. (2007). An investigation of abusive supervision as a predictor of performance and the meaning of work as a moderator of the relationship. *Leadership Quarterly*, *18*, 252—263.
*Harris, K. J., Wheeler, A. R., & Kacmar, K. M. (2009). Leader–member exchange and empowerment: Direct and interactive effects on job satisfaction, turnover intentions, and performance. *Leadership Quarterly*, *20*, 371—382.
Hartwig, F., & Dearing, B. E. (1979). *Exploratory data analysis.* Newbury Park, CA: Sage.
*Harvey, P., Stoner, J., Hochwarter, W., & Kacmar, C. (2007). Coping with abusive supervision: The neutralizing effects of ingratiation and positive affect on negative employee outcomes. *Leadership Quarterly*, *18*, 264—280.

*Haslam, S. A., & Ryan, M. K. (2008). The road to the glass cliff: Differences in the perceived suitability of men and women for leadership positions in succeeding and failing organizations. *Leadership Quarterly*, *19*, 530—546.
*Hazy, J. K. (2007). Computer models of leadership: Foundations for a new discipline or meaningless diversion. *Leadership Quarterly*, *18*, 391—410.
*Henderson, D. J., Liden, R. C., Glibkowski, B. C., & Chaudhry, A. (2009). LMX differentiation: A multilevel review and examination of its antecedents and outcomes. *Leadership Quarterly*, *20*, 517—534.
Henderson, D. J., Wayne, S. J., Shore, L. A., Bormmer, W. H., & Tetrick, L. E. (2008). Leader–member exchange, differentiation, and psychological contract fulfillment: A multilevel examination. *Journal of Applied Psychology*, *93*, 1208—1219.
*Hiller, N. J., Day, D. V., & Vance, R. J. (2006). Collective enactment of leadership roles and team effectiveness: A field study. *Leadership Quarterly*, *17*, 387—397.
*Hinkin, T. R., & Schriesheim, C. A. (2008). A theoretical and empirical examination of the transactional and non-leadership dimensions of the Multifactor Leadership Questionnaire (MLQ). *Leadership Quarterly*, *19*, 501—513.
Hitt, M. A., Beamish, P. W., Jackson, S. E., & Mathieu, J. E. (2007). Building theoretical and empirical bridges across levels: Multilevel research in management. *Academy of Management Journal*, *50*, 1385—1399.
Hoaglin, D. C., Mosteller, F., & Tukey, J. W. (1983). Understanding robust and exploratory data analysis*John Wiley & Sons*.
*Hogg, M. A., Fielding, K. S., Johnson, D., Masser, B., Russell, E., & Svensson, A. (2006). Demographic category membership and leadership in small groups: A social identity analysis. *Leadership Quarterly*, *17*, 335—350.
*Hogue, M., & Lord, R. G. (2007). A multilevel, complexity theory approach to understanding gender bias in leadership. *Leadership Quarterly*, *18*, 370—390.
*Hooper, D. T., & Martin, R. (2008). Beyond personal Leader–Member Exchange (LMX) quality: The effects of perceived LMX variability on employee reactions. *Leadership Quarterly*, *19*, 20—30.
*Howell, J. M., Neufeld, D. J., & Avolio, B. J. (2005). Examining the relationship of leadership and physical distance with business unit performance. *Leadership Quarterly*, *16*, 273—285.
*Hoyt, C. L., Simon, S., & Reid, L. (2009). Choosing the best (wo)man for the job: The effects of mortality salience, sex, and gender stereotypes on leader evaluations. *Leadership Quarterly*, *20*, 233—246.
*Huang, X., Wright, R. P., Chiu, W. C. K., & Wang, C. (2008). Relational schemas as sources of evaluation and misevaluation of leader–member exchanges: Some initial evidence. *Leadership Quarterly*, *19*, 266—282.
Hunt, J. G., & Dodge, G. E. (2000). Leadership déjà vu all over again. *Leadership Quarterly*, *11*, 435—458.
*Hunt, J. G., Osborn, R. N., & Boal, K. B. (2009). The architecture of managerial leadership: Stimulation and channeling of organizational emergence. *Leadership Quarterly*, *20*, 503—516.
*Hunter, S. T., Bedell-Avers, K. E., & Mumford, M. D. (2007). The typical leadership study: Assumptions, implications, and potential remedies. *Leadership Quarterly*, *18*, 435—446.
*Hunter, S. T., Bedell-Avers, K. E., & Mumford, M. D. (2009). Impact of situational framing and complexity on charismatic, ideological and pragmatic leaders: Investigation using a computer simulation. *Leadership Quarterly*, *20*, 383—404.
Iacobucci, D. (2008). *Mediation analysis.* Thousand Oaks, CA: Sage.
*Ilies, R., Morgeson, F. P., & Nahrgang, J. D. (2005). Authentic leadership and eudaemonic well-being: Understanding leader–follower outcomes. *Leadership Quarterly*, *16*, 373—394.
Iverson, G. R. (1991). *Contextual analysis.* Newbury Park, CA: Sage.
*Jansen, J. J. P., Vera, D., & Crossan, M. (2009). Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. *Leadership Quarterly*, *20*, 5—18.
Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*, 386—408.
*Johnson, S. K. (2008). I second that emotion: Effects of emotional contagion and affect at work on leader and follower outcomes. *Leadership Quarterly*, *19*, 1—19.
*Jung, D., Yammarino, F. J., & Lee, J. K. (2009). Moderating role of subordinates' attitudes on transformational leadership and effectiveness: A multi-cultural and multi-level perspective. *Leadership Quarterly*, *20*, 586—603.
*Jung, D., Wu, A., & Chow, C. W. (2008). Towards understanding the direct and indirect effects of CEOs' transformational leadership on firm innovation. *Leadership Quarterly*, *19*, 582—594.
*Kacmar, K. M., Zivnuska, S., & White, C. D. (2007). Control and exchange: The impact of work environment on the work effort of low relationship quality employees. *Leadership Quarterly*, *18*, 69—84.
*Kellett, J. B., Humphrey, R. H., & Sleeth, R. G. (2006). Empathy and the emergence of task and relations leaders. *Leadership Quarterly*, *17*, 146—162.
Kim, B. P., Lee, G., & Carlson, K. D. (2010). An examination of the nature of the relationship between Leader–Member-Exchange (LMX) and turnover intent at different organizational levels. *International Journal of Hospitality Management*, *29*, 591—597.
Knapp, T. R. (1977). The unit-of-analysis problem in applications of simple correlation analysis to education research. *Journal of Education Statistics*, *2*, 171—196.
Knoke, D., & Kuklinkski, J. H. (1982). *Network analysis.* Thousand Oaks, CA: Sage Publications.
*Kort, E. D. (2008). What, after all, is leadership? 'Leadership' and plural action. *Leadership Quarterly*, *19*, 409—425.
*Kriger, M., & Seng, Y. (2005). Leadership with inner meaning: A contingency theory of leadership based on the worldviews of five religions. *Leadership Quarterly*, *16*, 771—806.
Kuhn, T. S. (1970). *The structure of scientific revolutions* (3rd edition). Chicago: University of Chicago Press.
*Ladkin, D. (2008). Leading beautifully: How mastery, congruence and purpose create the aesthetic of embodied leadership practice. *Leadership Quarterly*, *19*, 31—41.
Lambe, P. (2007). *Organising knowledge: Taxonomies, knowledge and organizational effectiveness.* New York City: Neal-Schuman Publishers.
*Lapidot, Y., Kark, R., & Shamir, B. (2007). The impact of situational vulnerability on the development and erosion of followers' trust in their leader. *Leadership Quarterly*, *18*, 16—34.
*Lawrence, K. A., Lenk, P., & Quinn, R. E. (2009). Behavioral complexity in leadership: The psychometric properties of a new instrument to measure behavioral repertoire. *Leadership Quarterly*, *20*, 87—102.
*Lichtenstein, B. B., & Plowman, D. A. (2009). The leadership of emergence: A complex systems leadership theory of emergence at successive organizational levels. *Leadership Quarterly*, *20*, 617—630.
*Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *Leadership Quarterly*, *19*, 161—177.
*Ligon, G. S., Hunter, S. T., & Mumford, M. D. (2008). Development of outstanding leadership: A life narrative approach. *Leadership Quarterly*, *19*, 312—334.
*Lipponen, J., Koivisto, S., & Olkkonen, M. E. (2005). Procedural justice and status judgements: The moderating role of leader ingroup prototypicality. *Leadership Quarterly*, *16*, 517—528.
Little, T. D., Bovaird, J. A., & Card, N. A. (Eds.). (2007). *Modeling contextual effects in longitudinal studies*. Mahwah, NJ: Lawrence Erlbaum Associates.
*Livi, S., Kenny, D. A., Albright, L., & Pierro, A. (2008). A social relations analysis of leadership. *Leadership Quarterly*, *19*, 235—248.
*Lord, R. G., & Hall, R. J. (2005). Identity, deep structure and the development of leadership skill. *Leadership Quarterly*, *16*, 591—615.
*Luria, G. (2008). Climate strength — How leaders form consensus. *Leadership Quarterly*, *19*, 42—53.
*Madera, J. M., & Smith, D. B. (2009). The effects of leader negative emotions on evaluations of leadership in a crisis situation: The role of anger and sadness. *Leadership Quarterly*, *20*, 103—114.
*Manz, C. C., Anand, V., Joshi, M., & Manz, K. P. (2008). Emerging paradoxes in executive leadership: A theoretical interpretation of the tensions between corruption and virtuous values. *Leadership Quarterly*, *19*, 385—392.
Markham, S. E. (1988). Pay-for-performance dilemma revisited: Empirical example of the importance of group effects. *Journal of Applied Psychology*, *73*, 172—180.
Markham, S. E. (1998). The scientific visualization of organizations: A rationale for a new approach to organizational modeling. *Decision Sciences*, *29*, 1—23.
Markham, S. E., Dansereau, F., Alutto, J. A., & Dumas, M. (1983). Leadership convergence: An application of Within and Between Analysis to validity. *Applied Psychological Measurement*, *7*, 63—72.
Markham, S. E. & Grove, C. 1998. Organizational visualization — A multi-level quality improvement tool: An application to the case of the billing factory at AT&T.

Markham, S. E., & Halverson, R. R. (2002). Within- and between-entity analyses in multilevel research: A leadership example using single level analyses and boundary conditions (MRA). *Leadership Quarterly*, *13*, 35—52.
Markham, S. E., & McKee, G. H. (1995). Group absence behavior and standards: A multilevel analysis. *Academy of Management Journal*, *38*, 1174—1190.
Markham, S. E., Yammarino, F. J., Murry, W. D., & Palanski, M. D. (2010). Leader–member exchange, shared values, and performance: Agreement and levels of analysis do matter. *Leadership Quarterly*, *21*, 469—480.
*Marta, S., Leritz, L. E., & Mumford, M. D. (2005). Leadership skills and the group performance: Situational demands, behavioral requirements, and planning. *Leadership Quarterly*, *16*, 97—120.
*Martinko, M. J., Harvey, P., & Douglas, S. C. (2007). The role, function, and contribution of attribution theory to leadership: A review. *Leadership Quarterly*, *18*, 561—585.
*Maslin-Wicks, K. (2007). Forsaking transformational leadership: Roscoe conkling, the great Senator from New York. *Leadership Quarterly*, *18*, 463—476.
*McCauley, C. D., Drath, W. H., Palus, C. J., O'Connor, P. M. G., & Baker, B. A. (2006). The use of constructive-developmental theory to advance the understanding of leadership. *Leadership Quarterly*, *17*, 634—653.
McGuire, J. B. (1986). Management and research methodology. *Journal of Management*, *12*, 5—17.
*McKenna, B., Rooney, D., & Boal, K. B. (2009). Wisdom principles as a meta-theoretical basis for evaluating leadership. *Leadership Quarterly*, *20*, 177—190.
*Mehra, A., Smith, B. R., Dixon, A. L., & Robertson, B. (2006). Distributed leadership in teams: The network of leadership perceptions and team performance. *Leadership Quarterly*, *17*, 232—245.
*Michie, S., & Gooty, J. (2005). Values, emotions, and authenticity: Will the real leader please stand up? *Leadership Quarterly*, *16*, 441—457.
*Mio, J. S., Riggio, R. E., Levin, S., & Reese, R. (2005). Presidential leadership and charisma: The effects of metaphor. *Leadership Quarterly*, *16*, 287—294.
Möller, T., Hamann, B., & Russell, R. (Eds.). (2009). *Mathematical foundations of scientific visualization, computer graphics, and massive data exploration*. New York City: Springer.
*Morgeson, F. P., & DeRue, D. S. (2006). Event criticality, urgency, and duration: Understanding how events disrupt teams and influence team leader intervention. *Leadership Quarterly*, *17*, 271—287.
*Moss, S. A., Dowling, N., & Callanan, J. (2009). Towards an integrated model of leadership and self regulation. *Leadership Quarterly*, *20*, 162—176.
*Mumford, M. D., Antes, A. L., Caughron, J. J., & Friedrich, T. L. (2008). Charismatic, ideological, and pragmatic leadership: Multi-level influences on emergence and performance. *Leadership Quarterly*, *19*, 144—160.
*Mumford, T. V., Campion, M. A., & Morgeson, F. P. (2007c). The leadership skills strataplex: Leadership skill requirements across organizational levels. *Leadership Quarterly*, *18*, 154—166.
*Mumford, M. D., Espejo, J., Hunter, S. T., Bedell-Avers, K. E., Eubanks, D. L., & Connelly, S. (2007a). The sources of leader violence: A comparison of ideological and non-ideological leaders. *Leadership Quarterly*, *18*, 217—235.
*Mumford, M. D., Friedrich, T. L., Caughron, J. J., & Byrne, C. L. (2007b). Leader cognition in real-world settings: How do leaders think about crises. *Leadership Quarterly*, *18*, 515—543.
*Murphy, S. E., & Ensher, E. A. (2008). A qualitative analysis of charismatic leadership in creative teams: The case of television directors. *Leadership Quarterly*, *19*, 335—352.
Myers, R. H., & Montgomery, D. C. (1995). *Response surface methodology: Process and product optimization using designed experiments*. New York City: Wiley Interscience.
*Naidoo, L. J., & Lord, R. G. (2008). Speech imagery and perceptions of charisma: The mediating role of positive affect. *Leadership Quarterly*, *19*, 283—296.
*Nelson, M. (2008). Odysseus and Aeneas: A classical perspective on leadership. *Leadership Quarterly*, *19*, 469—477.
*Nelson, G., & Dyck, J. (2005). Forbearance in leadership: Opportunities and risks involved in cutting followers some slack. *Leadership Quarterly*, *16*, 53—70.
*Nemanich, L. A., & Keller, R. T. (2007). Transformational leadership in an acquisition: A field study of employees. *Leadership Quarterly*, *18*, 49—68.
*Nemanich, L. A., & Vera, D. (2009). Transformational leadership and ambidexterity in the context of an acquisition. *Leadership Quarterly*, *20*, 19—33.
*Novicevic, M. M., Heames, J. T., Paolillo, J. G. P., & Buckley, M. R. (2009). Executive development: History lessons learned from Barnard. *Leadership Quarterly*, *20*, 155—161.
*Osbom, R. N., & Hunt, J. G. (2007). Leadership and the choice of order: Complexity and hierarchical perspectives near the edge of chaos. *Leadership Quarterly*, *18*, 319—340.
Osborn, R. N., Hunt, J. G., & Jauch, L. R. (2002). Toward a contextual theory of leadership. *Leadership Quarterly*, *13*, 797—837.
*Osborn, R. N., & Marion, R. (2009). Contextual leadership, transformational leadership and the performance of international innovation seeking alliances. *Leadership Quarterly*, *20*, 191—206.
Ostroff, C. (1993). Comparing correlations based on individual-level and aggregated data. *Journal of Applied Psychology*, *78*, 569—582.
Ostroff, C., & Harrison, D. A. (1999). Meta-analysis, level of analysis, and best estimates of population correlations: Cautions for interpreting meta-analytic results in organizational behavior. *Journal of Applied Psychology*, *84*, 260—270.
*Padilla, A., Hogan, R., & Kaiser, R. B. (2007). The toxic triangle: Destructive leaders, susceptible followers, and conducive environments. *Leadership Quarterly*, *18*, 176—194.
*Palanski, M. E., & Yammarino, F. J. (2009). Integrity and leadership: A multi-level conceptual framework. *Leadership Quarterly*, *20*, 405—420.
Palocsay, S. W., Markham, I. S., & Markham, S. E. (2010). Utilizing and teaching data tools in Excel for exploratory analysis. *Journal of Business Research*, *63*, 191—206.
*Parameshwar, S. (2005). Spiritual leadership through ego-transcendence: Exceptional responses to challenging circumstances. *Leadership Quarterly*, *16*, 689—722.
*Parameshwar, S. (2006). Inventing higher purpose through suffering: The transformation of the transformational leader. *Leadership Quarterly*, *17*, 454—474.
*Paunonen, S. V., Lonnqvist, J. E., Verkasalo, M., Leikas, S., & Nissinen, V. (2006). Narcissism and emergent leadership in military cadets. *Leadership Quarterly*, *17*, 475—486.
*Pearce, C. L., Manz, C. C., & Sims, H. P. (2008). The roles of vertical and shared leadership in the enactment of executive corruption: Implications for research and practice. *Leadership Quarterly*, *19*, 353—359.
*Peterson, M. F., & Castro, S. L. (2006). Measurement metrics at aggregate levels of analysis: Implications for organization culture research and the GLOBE project. *Leadership Quarterly*, *17*, 506—521.
*Pierro, A., Cicero, L., Bonaiuto, M., van Knippenberg, D., & Kruglanski, A. W. (2005). Leader group prototypicality and leadership effectiveness: The moderating role of need for cognitive closure. *Leadership Quarterly*, *16*, 503—516.
*Pittinsky, T. L., & Simon, S. (2007). Intergroup leadership. *Leadership Quarterly*, *18*, 586—605.
*Pittinsky, T. L., & Zhu, C. (2005). Contemporary public leadership in China: A research review and consideration. *Leadership Quarterly*, *16*, 921—939.
*Plowman, D. A., Solansk, S., Beck, T. E., Baker, L., Kulkarni, M., & Travis, D. V. (2007). The role of leadership in emergent, self-organization. *Leadership Quarterly*, *18*, 341—356.
*Porter, L. W., & McLaughlin, G. B. (2006). Leadership and the organizational context: Like the weather. *Leadership Quarterly*, *17*, 559—576.
*Price, T. L. (2008). Kant's advice for leaders: "No, you aren't special". *Leadership Quarterly*, *19*, 478—487.
*Provizer, N. W. (2008). On hedgehogs, foxes and leadership: Uncovering the other Tolstoy. *Leadership Quarterly*, *19*, 453—458.
Przeworski, A., & Teune, H. (1970). The logic of comparative social inquiry. New York City: Wiley.
*Purvanova, R. K., & Bono, J. E. (2009). Transformational leadership in context: Face-to-face and virtual teams. *Leadership Quarterly*, *20*, 343—357.
*Reave, L. (2005). Spiritual values and practices related to leadership effectiveness. *Leadership Quarterly*, *16*, 655—687.
*Reicher, S., Haslam, S. A., & Hopkins, N. (2005). Social identity and the dynamics of leadership: Leaders and followers as collaborative agents in the transformation of social reality. *Leadership Quarterly*, *16*, 547—568.
Reichers, A. E., & Schneider, B. (1990). Climate and culture: An evolution of constructs. In B. Schneider (Ed.), *Climate and culture* (pp. 5—39). San Francisco: Jossey-Bass.
Robinson, W. S. (1950). Ecological correlations and the behavior of individuals. *American Sociological Review*, *15*, 351—357.
*Rosenthal, S. A., & Pittinsky, T. L. (2006). Narcissistic leadership. *Leadership Quarterly*, *17*, 617—633.
*Rowe, W. G., Cannella, A. A., Rankin, D., & Gorman, D. (2005). Leader succession and organizational performance: Integrating the common-sense, ritual scapegoating, and vicious-circle succession theories. *Leadership Quarterly*, *16*, 197—219.
*Rowland, P., & Parry, K. (2009). Consensual commitment: A grounded theory of the meso-level influence of organizational design on leadership and decision-making. *Leadership Quarterly*, *20*, 535—553.

*Rowold, J., & Heinitz, K. (2007). Transformational and charismatic leadership: Assessing the convergent, divergent and criterion validity of the MLQ and the CKS. *Leadership Quarterly*, *18*, 121—133.
Rynes, S. L., Bartunek, J. M., & Daft, R. L. (2001). Across the great divide: Knowledge creation and transfer between practitioners and academics. *Academy of Management Journal*, *44*, 340—355.
Rynes, S. L., Giluk, T. L., & Brown, K. G. (2007). The very separate worlds of academic and practitioner periodicals in human resource management: Implications for evidence-based management. *Academy of Management Journal*, *50*, 987—1008.
Rynes, S. L., McNatt, D. B., & Bretz, R. D. (1999). Academic research inside organizations: Inputs, processes, and outcomes. *Personnel Psychology*, *52*, 869—898.
*Schaubroeck, J., Walumbwa, F. O., Ganster, D. C., & Kepes, S. (2007). Destructive leader traits and the neutralizing influence of an "enriched" job. *Leadership Quarterly*, *18*, 236—251.
*Scherbaum, C. A., Finlinson, S., Barden, K., & Tamanini, K. (2006). Applications of item response theory to measurement issues in leadership research. *Leadership Quarterly*, *17*, 366—386.
*Schneider, M., & Somers, M. (2006). Organizations as complex adaptive systems: Implications of Complexity Theory for leadership research. *Leadership Quarterly*, *17*, 351—365.
Schriesheim, C. A., Castro, S. L., Zhou, X., & Yammarino, F. J. (2001). The folly of theorizing "A" but testing "B": A selective level-of-analysis review of the field and a detailed Leader–Member Exchange illustration. *Leadership Quarterly*, *12*, 515—551.
*Schriesheim, C. A., Castro, S. L., Zhou, X. H., & DeChurch, L. A. (2006). An investigation of path-goal and transformational leadership theory predictions at the individual level of analysis. *Leadership Quarterly*, *17*, 21—38.
Schriesheim, C. A., Tepper, B. J., & Tetrault, L. A. (1994). Least preferred coworker score, situational control, and leadership effectiveness: A meta-analysis of contingency-model performance predictions. *Journal of Applied Psychology*, *79*, 561—573.
*Schriesheim, C. A., Wu, J. B., & Scandura, T. A. (2009). A meso measure? Examination of the levels of analysis of the Multifactor Leadership Questionnaire (MLQ). *Leadership Quarterly*, *20*, 604—616.
Sereno, P. C. (2009). Comparative cladistics. *Cladistics*, *25*, 624—659.
*Seyranian, V., & Bligh, M. C. (2008). Presidential charismatic leadership: Exploring the rhetoric of social change. *Leadership Quarterly*, *19*, 54—76.
*Shamir, B., & Eilam, G. (2005). "What's your story?" A life-stories approach to authentic leadership development. *Leadership Quarterly*, *16*, 395—417.
Skelton, P., Smith, A., & Monks, N. (2009). *Cladistics: A practical primer.* Cambridge UK: Cambridge University Press.
*Sosik, J. J. (2005). The role of personal values in the charismatic leadership of corporate managers: A model and preliminary field study. *Leadership Quarterly*, *16*, 221—244.
*Sosik, J. J., & Dinger, S. L. (2007). Relationships between leadership style and vision content: The moderating role of need for social approval, self-monitoring, and need for social power. *Leadership Quarterly*, *18*, 134—153.
*Sparrowe, R. T. (2005). Authentic leadership and the narrative self. *Leadership Quarterly*, *16*, 419—439.
*Sternberg, R. J. (2008). The WICS approach to leadership: Stories of leadership and the structures and processes that support them. *Leadership Quarterly*, *19*, 360—371.
*Stouten, J., & Tripp, T. M. (2009). Claiming more than equality: Should leaders ask for forgiveness. *Leadership Quarterly*, *20*, 287—298.
*Strang, S. E., & Kuhnert, K. W. (2009). Personality and Leadership Developmental Levels as predictors of leader performance. *Leadership Quarterly*, *20*, 421—433.
*Strange, J. M., & Mumford, M. D. (2005). The origins of vision: Effects of reflection, models, and analysis. *Leadership Quarterly*, *16*, 121—148.
*Taggar, S., & Ellis, R. (2007). The role of leaders in shaping formal team norms. *Leadership Quarterly*, *18*, 105—120.
*Treadway, D. C., Adams, G. L., Ranft, A. L., & Ferris, G. R. (2009). A meso-level conceptualization of CEO celebrity effectiveness. *Leadership Quarterly*, *20*, 554—570.
*Tse, H. H. M., Dasborough, M. T., & Ashkanasy, N. M. (2008). A multi-level analysis of team climate and interpersonal exchange relationships at work. *Leadership Quarterl*, *19*, 195—211.
Tsui, A. S. (2007). From homogenization to pluralism: International management research in the academy and beyond. *Academy of Management Journal*, *50*, 1353—1364.
*Tsui, A. S., Zhang, Z. X., Wang, H., Xin, K. R., & Wu, J. B. (2006). Unpacking the relationship between CEO leadership behavior and organizational culture. *Leadership Quarterly*, *17*, 113—137.
*Tyler, T. R., & De Cremer, D. (2005). Process-based leadership: Fair procedures and reactions to organizational change. *Leadership Quarterly*, *16*, 529—545.
*Uhl-Bien, M. (2006). Relational Leadership Theory: Exploring the social processes of leadership and organizing. *Leadership Quarterly*, *17*, 654—676.
*Uhl-Bien, M. (2008). "A noble endeavor": Comments from the Yearly Review Editor. *Leadership Quarterly*, *19*, 632—633.
*Uhl-Bien, M., & Marion, R. (2009). Complexity leadership in bureaucratic forms of organizing: A meso model. *Leadership Quarterly*, *20*, 631—650.
*Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *Leadership Quarterly*, *18*, 298—318.
Van de Ven, A. H., & Johnson, P. E. (2006). Knowledge for theory and practice. *Academy of Management Review*, *31*, 802—821.
*Waldman, D. A., & Javidan, M. (2009). Alternative forms of charismatic leadership in the integration of mergers and acquisitions. *Leadership Quarterly*, *20*, 130—142.
*Waldman, D. A., & Siegel, D. (2008). Defining the socially responsible leader. *Leadership Quarterly*, *19*, 117—131.
*Walker, M. C. (2006). Morality, self-interest, and leaders in international affairs. *Leadership Quarterly*, *17*, 138—145.
*Walumbwa, F. O., Wu, C., & Orwa, B. (2008). Contingent reward transactional leadership, work attitudes, and organizational citizenship behavior: The role of procedural justice climate perceptions and strength. *Leadership Quarterly*, *19*, 251—265.
*Wansink, B., Payne, C. R., & van Ittersum, K. (2008). Profiling the heroic leader: Empirical lessons from combat-decorated veterans of World War II. *Leadership Quarterly*, *19*, 547—555.
*Warner, N. (2007). Screening leadership through Shakespeare: Paradoxes of leader-follower relations in Henry V on film. *Leadership Quarterly*, *18*, 1—15.
*Wasti, S. A., Tan, H. H., Brower, H. H., & Onder, C. (2007). Cross-cultural measurement of supervisor trustworthiness: An assessment of measurement invariance across three cultures. *Leadership Quarterly*, *18*, 477—489.
*Wendt, H., Euwema, M. C., & van Emmerik, I. J. H. (2009). Leadership and team cohesiveness across cultures. *Leadership Quarterly*, *20*, 358—370.
*Whittington, J. L., Pitts, T. M., Kageler, W. V., & Goodwin, V. L. (2005). Legacy leadership: The leadership wisdom of the Apostle Paul. *Leadership Quarterly*, *16*. (pp. 749—770).
*Williams, E. A., Pillai, R., Lowe, K. B., Jung, D., & Herst, D. (2009). Crisis, charisma, values, and voting behavior in the 2004 presidential election. *Leadership Quarterly*, *20*, 70—86.
*Williamson, T. (2008). The good society and the good soul: Plato's Republic on leadership. *Leadership Quarterly*, *19*, 397—408.
Yammarino, F. J., & Atwater, L. E. (1997). Do managers see themselves as others see them? Implications of self-other rating agreement for human resources management. *Organizational Dynamics*, *25*, 35—44.
*Yammarino, F. J., & Dansereau, F. (2008). Multi-level nature of and multi-level approaches to leadership. *Leadership Quarterly*, *19*, 135—141.
Yammarino, F. J., Dionne, S. D., Chun, J. U., & Dansereau, F. (2005). Leadership and levels of analysis: A state-of-the-science review. *Leadership Quarterly*, *16*, 879—919.
*Yammarino, F. J., Dionne, S. D., Schriesheim, C. A., & Dansereau, F. (2008). Authentic leadership and positive organizational behavior: A meso, multi-level perspective. *Leadership Quarterly*, *19*, 693—707.
*Yang, J. X., Mossholder, K. W., & Peng, T. K. (2009). Supervisory procedural justice effects: The mediating roles of cognitive and affective trust. *Leadership Quarterly*, *20*, 143—154.
Young, F. W., Valero-Mora, P. M., & Friendly, M. (2006). *Visual statistics: Seeing data with dynamic interactive graphics.* Danvers, MA: Wiley Interscience.
*Yukl, G. (2008). How leaders influence organizational effectiveness. *Leadership Quarterly*, *19*, 708—722.
*Yukl, G. (2009). Leading organizational learning: Reflections on theory and research. *Leadership Quarterly*, *20*, 49—53.
*Yukl, G., Seifert, C. F., & Chavez, C. (2008). Validation of the extended Influence Behavior Questionnaire. *Leadership Quarterly*, *19*, 609—621.
Zhou, X. H., & Schriesheim, C. A. (2009). Supervisor–subordinate convergence in descriptions of leader–member exchange (LMX) quality: Review and testable propositions. *Leadership Quarterly*, *20*, 920—932.
*Zhu, W. C., Chew, I. K. H., & Spangler, W. D. (2005). CEO transformational leadership and organizational outcomes: The mediating role of human-capital-enhancing human resource management. *Leadership Quarterly*, *16*, 39—52.