



MAYS BUSINESS SCHOOL
TEXAS A & M UNIVERSITY

Mays Business School
Texas A&M University

Research Paper No. 2012-4

Do Peers Make the Place? Conceptual Synthesis and
Meta-Analysis of
Coworker Effects on Perceptions, Attitudes, OCBs, and
Performance

Dan S. Chiaburu

David A. Harrison

Do Peers Make the Place? Conceptual Synthesis and Meta-Analysis of Coworker Effects on Perceptions, Attitudes, OCBs, and Performance

Dan S. Chiaburu and David A. Harrison
The Pennsylvania State University

The authors propose that broad aspects of lateral relationships, conceptualized as *coworker support* and *coworker antagonism*, are linked to important individual employee outcomes (role perceptions, work attitudes, withdrawal, and effectiveness) in a framework that synthesizes several theoretical predictions. From meta-analytic tests based on 161 independent samples and 77,954 employees, the authors find support for most of the proposed linkages. Alternative explanations are ruled out, as results hold when controlling for leader influences and mediation processes. The authors also observe differential strengths of coworker influence based on its *valence*, *content*, and *severity*, and on the *social intensity* of the task environment. The authors conclude with a call for more comprehensive, complex theory and investigation of coworker influences as part of the social environment at work.

Keywords: influence, social support, coworkers, antagonism, lateral relationship

Coworkers are not only a vital part of the social environment at work; they can literally define it (Schneider, 1987). For some employees, coworkers might exemplify Sartre's (1989) famous admonition that "hell is other people" (p. 190). For others, "heaven is the work of the best and kindest men and women" (Butler, 1912/1951, p. 55). In less colorful terms, individuals in every type of organization have coworkers who are partners in social and task interactions. In the United States, for example, 90.2% of employees likely have coworkers: other individuals situated in the same stratum of an organizational hierarchy and with whom one executes tasks and has routine interactions—that is, others one works alongside on a day-to-day basis (Fairlie, 2004) and who can both support and antagonize their colleagues.

The importance of coworkers is magnified by several recent firm- and job-related trends. Flatter organizational structures and increased team-based work translate into more frequent and more meaningful lateral interactions. Again, in the United States, 82% of companies with 100 or more employees use teams; 90% of U.S. employees spend at least part of their work days in teams (Cascio, 1998; Gordon, 1992). The trend is also rising in the European Union, with more than half of the countries reporting at least 55%

teamwork (European Foundation for the Improvement of Living and Working Conditions, 2007). Likewise, the shift of job content from steady and routine individual tasks to more complex and collective tasks (Harrison, Johns, & Martocchio, 2000) has enhanced coworkers' salience and their potential influence.

Applied psychological investigations of coworker influence have maintained a steady but somewhat fragmented presence in the scholarly literature. For example, there is now cumulative evidence about how social support from coworkers is related to individuals' stress (Viswesvaran, Sanchez, & Fischer, 1999), burn-out (Halbesleben, 2006), and physical strains (Schwarzer & Lepin, 1989). Some studies have connected either positive or negative behaviors originating from coworkers to individual work outcomes other than health (Duffy, Ganster, & Pagon, 2002; Sherony & Green, 2002); however, assimilation of that evidence is impeded by research being anchored in theoretical vantage points created for other purposes (including those for leadership). That is, despite the existence of a potentially large set of primary investigations that examine coworker variables, studies are disparate, and no broad conceptual or empirical synthesis has been made. Thus, important questions about how coworkers "make the place" for individuals (focal employees) remain not only unanswered but, in some cases, unasked.

To advance the understanding of how coworkers matter, in the current article we formulate several fundamental questions. Specifically, are influences originating from coworkers substituting or overlapping with those stemming from other members of the social environment, such as leaders? Are coworker effects unique? If so, how strongly are coworker behaviors linked to individual outcomes? Are those linkages mediated (indirect) or unique (direct)? Further, are the linkages systematically stronger or weaker for particular dimensions of coworker actions and for particular types of employee outcomes? Finally, do specific job demands accentuate or attenuate links to coworker influences? All of these

Dan S. Chiaburu and David A. Harrison, Smeal College of Business, The Pennsylvania State University.

We extend our thanks to members of the Organizational Research Group workshops at the Pennsylvania State University, and to Jim Detert, Dan Newman, Ravi Gajendran, Jennifer Kish Gephart, Nevena Koukova, Jennifer Mueller, K. Sivakumar, Amanuel Tekleab, and Linn Van Dyne for their helpful comments on drafts and stages in the process of developing this article.

Correspondence concerning this article should be addressed to Dan S. Chiaburu, The Pennsylvania State University, Smeal College of Business, 403A Business Building, University Park, PA 16801. E-mail: dchiaburu@psu.edu

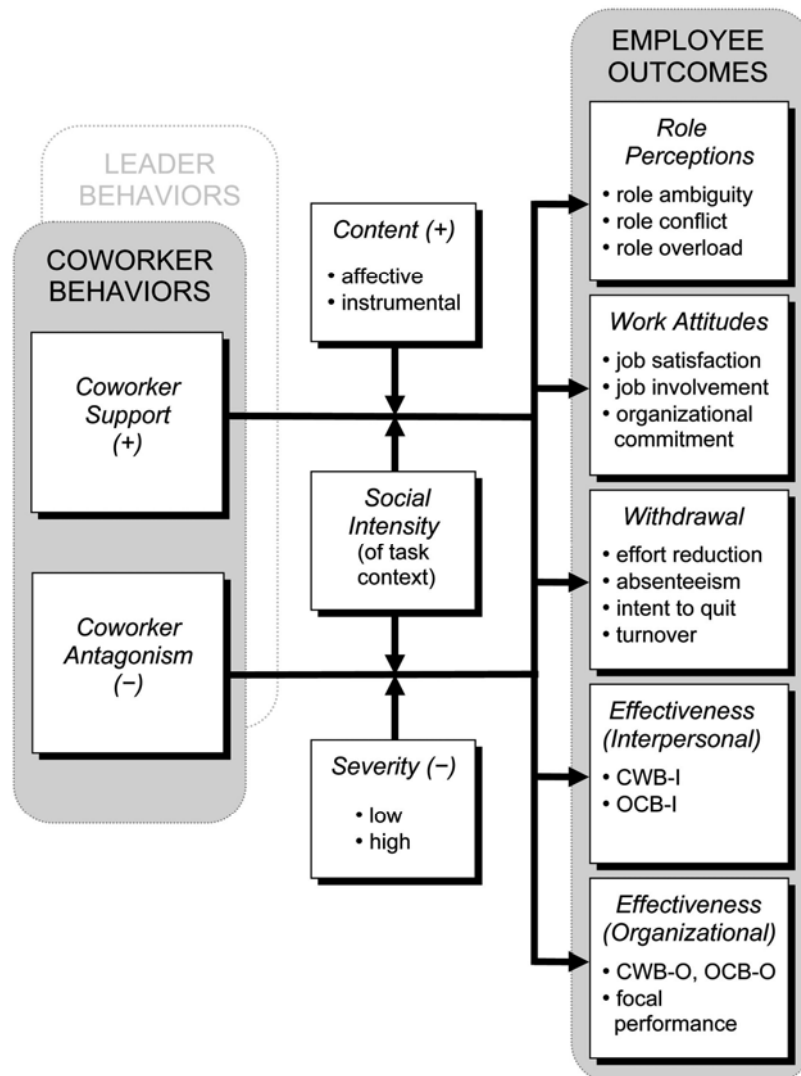


Figure 1. Theoretical framework linking coworker behaviors with individual employee outcomes. CWB-I = counterproductive work behavior (individual-directed); OCB-I = organizational citizenship behavior (individual-directed); CWB-O = counterproductive work behavior (organization-directed); OCB-O = organizational citizenship behavior (organization-directed).

questions can start to be addressed by systematically cumulating and comparing effect sizes from existing studies, using an integrative framework.

Our first two objectives, then, are (a) to develop such a framework for examining how coworkers influence the focal employees' work experiences, separately from other elements in the employee's social environment, and (b) to test its viability through meta-analysis. This helps us build a comprehensive summary of what is known about how lateral influences may or may not help make the place for individuals (Schneider, 1987). We organize our predictor space on the basis of the tenets of interdependence theory: Coworkers can provide different *valences* of influence: positive (social support) and negative (antagonism) to their colleagues (Thibaut & Kelley, 1959). With respect to individual criteria, we investigate the relationship between what coworkers provide or do,

and their colleagues' individual *role perceptions*, *work attitudes*, *withdrawal*, and *effectiveness* (see Figure 1).¹ Importantly, a third objective (and one that serves as premise for the first two) is (c) to use cumulative evidence to clarify the uniqueness of coworkers' influences from leaders' influences by accounting for and comparing how strongly coworkers and leaders influence work outcomes when considered simultaneously across a large number of studies. A fourth objective deals in a different way with uniqueness

¹ We do not address attitudes directed *toward* the originating coworkers (e.g., trust, satisfaction, liking, or interpersonal attraction), as these could be argued to highly overlap with the input variables perceived to come *from* coworkers. We also equivalently refer to the individuals whose outcomes are assessed as "colleagues" of coworkers, or "focal employees."

of effects. Specifically, we (d) examine whether coworker behaviors contribute to individual effectiveness outcomes directly, or indirectly, through the shaping of colleagues' role perceptions and work attitudes. Finally, a fifth objective is (e) to refine theory and sharpen guidelines for interventions by examining how our main linkages are modified by more nuanced aspects of coworker influences: the *content* of support provided by coworkers (e.g., instrumental or affective), the *severity* of coworker antagonistic behavior (e.g., incivility to aggression), and the *social intensity* of tasks and jobs.

Direct Effects: Coworker Influences on Individual Employee Outcomes

Uniqueness of Coworker From Leader Influences

Do coworkers matter, even after leaders are accounted for? If not, then our proposed synthesis is much less useful. Therefore, we put that conjecture to empirical test before specifically testing links between coworker influences and individual outcomes. Employees have interactions with leaders and coworkers, and both types of relationships can be positively and negatively valenced. Theoretically, leaders can be supportive or antagonistic (Fiedler, 1996; Tierney & Tepper, 2007); similar possibilities exist for coworkers. Despite valence-based similarities, however, there is likely to be more discretion in lateral than in vertical exchanges. Vertical relationships are governed by authority ranking, as opposed to equality matching (Fiske, 1992), and coworker exchanges are based on reciprocation (Gouldner, 1960) and turn-taking (Kelley & Thibaut, 1978). Further, because of their greater presence relative to leaders in almost any organization, employees are likely to interact more frequently with their coworkers (Ferris & Mitchell, 1987). The repository of emotional and behavioral resources from coworkers is thus larger and easier to draw from than the leader-based one. More frequent coworker interactions are also more likely because they have generally the same status as the focal employee (by definition), and exchanges of all types are less restricted. Coworkers should, then, have a nontrivial influence on colleagues' role perceptions, attitudes, withdrawal, and effectiveness, even in the presence of other influences originating from the direct leader.

As we present in more detail below, those (unique) effects likely differ for different *valences* of coworker actions. Following Cutrona and Russell (1987) and extending Thibaut and Kelley's (1959; cost vs. benefit) treatments, we refer to positively valenced coworker behaviors as *support*, and we refer to negatively valenced coworker behaviors as *antagonism*. *Coworker support* is the provision of desirable resources to a focal employee, including task-directed helping (Caplan, Cobb, French, Harrison, & Pinneau, 1975), coworker mentoring (Ensher, Thomas, & Murphy, 2001), and friendliness or positive affect (Morgeson & Humphrey, 2006). On the other hand, *coworker antagonism* is the enactment of unwelcome, undesirable, or disdained behaviors toward a focal employee, such as incivility (Andersson & Pearson, 1999), social undermining (Duffy et al., 2002), and interpersonal abuse (Bruk-Lee & Spector, 2006).

Hypotheses 1a–1b: Coworker (a) support and (b) antagonism have a unique effect on focal employees' outcomes beyond that of leader influences.

Coworker Support and Individual Role Perceptions

Lateral social influences on an individual's *role perceptions* are central to role-sending and receiving theories (Katz & Kahn, 1978). *Roles* are defined as sets of behavioral expectations associated with given positions in a social structure. Coworkers offer information and engage in behavioral support for some activities while discouraging others, helping to shape a colleague's beliefs about what he or she should (not) do (Ilgen & Hollenbeck, 1991; Kram & Isbella, 1985). Both newcomers and veteran employees seek such advice, instruction, and help primarily from coworkers because of their perceived similarity (Gibson, 2003; Morrison, 1993; Seers, 1989).

Given coworkers' positions as role senders (Van Sell, Brief, & Schuler, 1981) and as members of a focal employee's role set (Katz & Kahn, 1978), they can influence several role components. Specifically, coworkers relay task advice that diminishes their colleagues' *role ambiguity*: uncertainty experienced about behavioral expectations. Role ambiguity is composed of the relative unpredictability of outcomes of individual behavior and the lack of clarity of behavioral requirements (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Rizzo, House, & Lirtzman, 1970). Coworkers provide information resources, and thus "reduce the tensions growing out of uncertainty and unpredictability in the actions of others" (Bales, 1950, p. 33). High-quality or frequent exchanges with coworkers can affect a focal employee's perceived *role conflict* ("the simultaneous occurrence of two [or more] sets of pressures such that compliance with one would make more difficult compliance with the other"; Kahn et al., 1964, p. 19). Coworkers might also shape their colleagues' roles through offering lateral mentoring (Raabe & Beehr, 2003), and providing cues about task prioritizing that can reduce role conflict.

Finally, individuals can experience *role overload*, or situations in which they feel that excessive activities are expected of them given their abilities, time, and organizational constraints (Rizzo et al., 1970). Coworkers are salutary in this situation too. Regardless of the type of job, some tasks are central, and others are peripheral or even ceremonial (Ashforth & Mael, 1989). Coworkers can help to sort out such tasks, with the net result of reduced overload. In addition to giving cues about what is important, coworkers can reduce their fellow employees' feelings of role overload through emotional means (i.e., displaying empathy or providing a sounding board of someone with whom to commiserate; Beehr, Jex, Stacy, & Murray, 2000).

Hypotheses 2a–2c: Coworker support is negatively related to focal employees' (a) role ambiguity, (b) role conflict, and (c) role overload.

Coworker Support and Individual Work Attitudes

A long-standing prediction in research on lateral relationships is that coworkers can influence employee opinions and attitudes through varied means, including providing task-related help, information, or affective support (Caplan et al., 1975). We concentrate on widely inclusive attitudes, such as job satisfaction, job involvement, and organizational commitment, as they are central to one's work experience (Harrison, Newman, & Roth, 2006). Job satisfaction is a pleasurable or positive emotional state resulting

from the appraisal of one's job or job experiences (Locke, 1976). It should be positively connected to coworker support. For example, focal employees are more satisfied with their jobs when there is a congenial social environment created by others or when that environment is enriched by behavioral assistance for getting tasks completed (Beehr, 1986; Pollock, Whitbred, & Contractor, 2000).

Coworker support should also enhance *job involvement*, the state of psychological identification with one's work role (Lodahl & Kejner, 1965; Nugent & Abolafia, 2006). Coworkers provide information on how to internalize versus externalize core elements of one's job, even if it is stigmatized by others outside work (Ashforth & Kreiner, 1999). The fact that coworkers exhibit behaviors, such as staying late, picking up an extra shift, or verbalizing psychological states, can lead to internalization by the focal employee (Kelman, 1961).

Organizational commitment is typically described as an emotional attachment to, or identification with, one's firm (rather than one's job; Meyer & Allen, 1984). Factors other than formal exchanges with the firm or its authority representatives (direct leaders) can influence individuals' commitment. With increased frequency, coworkers supply resources that are a part of the organizational experience: psychosocial support and sometimes even training and mentoring (Ensher, Thomas, & Murphy, 2001). These activities are designed with the explicit purpose of increasing loyalty and deepening commitment to the organization.

Hypotheses 3a–3c: Coworker support is positively related to focal employees' (a) job satisfaction, (b) job involvement, and (c) organizational commitment.

Coworker Support and Individual Withdrawal

The contributions of coworkers to the social environment at work can also drive a focal employee's behavioral outcomes, including forms of withdrawal. Such behaviors can be arranged from withholding inputs (Kidwell & Bennett, 1993) and psychological detachment (such as turnover intention) to more noticeable forms of lateness or absenteeism, to eventual organizational turnover (Harrison, 2002). *Effort reduction*, the likelihood that an individual will give less than full inputs to a job-related task (shirking, loafing, or free-riding; Kidwell & Bennett, 1993), can be affected by coworkers. For example, employees seek out information from similar others to determine required levels of effort relative to what those others are providing (Morrison, 1993). Withdrawing a step further from the job, employees can engage in *absenteeism* (lack of physical presence at a work setting when and where one is expected to be) because of similar others' behavior patterns (Mathieu & Kohler, 1990). That is, "predicting individual variation in voluntary absence behavior involves examining what individuals feel is personally desirable and acceptable to their coworkers [italics added]" (Nicholson & Johns, 1985, p. 403). Likewise, positive resources from coworkers, especially in interdependent environments, can be a rising motivational tide that lifts all boats toward higher levels of job dedication, including attendance (reduced absenteeism; Harrison, 1995; Xie & Johns, 2000). Coworkers can motivate focal employees' presence, given that they will be less likely to use absences as excuses from work if coworkers supply help and support (e.g., Iverson, Olekalns, & Erwin, 1998).

Coworkers can also influence the focal employees' *intention to quit* (conceived as a willfulness to leave the organization) and their *turnover* (permanent separation from the firm) by reducing communication and emotional support (e.g., Cox, 1999) or by badmouthing the organization and quitting themselves (e.g., Krackhardt & Porter, 1986). In the embeddedness model of turnover, focal employees are connected in a relational network with coworkers, and the quality of these exchanges leads to less job search activity and reduced turnover (Mitchell, Holtom, Lee, Sablinski, & Erez, 2001). Lateral exchanges are also present in the unfolding model, in which decisions to quit are initiated by specific shocks (T. W. Lee & Mitchell, 1994).

Hypotheses 4a–4d: Coworker support has a negative relationship with focal employees' (a) effort reduction, (b) absenteeism, (c) intention to quit, and (d) turnover.

Coworker Support and Individual Effectiveness

In many ways, coworker support might influence elements of the *effectiveness space* (Harrison et al., 2006), including counterproductive work behaviors (CWBs), organizational citizenship behaviors (OCBs), and task performance. On one hand, CWBs are intentional actions viewed by the organization as contrary to its legitimate interests (Gruys & Sackett, 2003). They comprise a general category that encompasses deviant (Bennett & Robinson, 2000), antisocial (Robinson & O'Leary-Kelly, 1998), uncivil (Andersson & Pearson, 1999), and socially undermining (Duffy, Ganster, Shaw, Johnson, & Pagon, 2006) actions. On the other hand, OCBs consist of individual actions that are discretionary, that are not explicitly recognized by a firm's reward system, and that promote stable, efficient organization functioning (Organ, Podsakoff, & MacKenzie, 2006).

Behaviors in each of these categories can be distinguished as being directed at coworkers versus the organization, and they likely follow social exchange (P. Blau, 1964) and reciprocity (Gouldner, 1960) norms. *Quid-pro-quo* dominates weak-tie social relationships (which might describe connections with many coworkers), as observed in competition and cooperation experiments (Axelrod, 1984). On the basis of these exchange principles, focal employees will likely respond in kind to coworker support. As coworkers supply more helpful resources, we expect focal employees themselves to engage more in interpersonally directed OCBs (OCB-Is) and less often in interpersonally directed CWBs (CWB-Is). Spillover explains the same kinds of positive (OCB) and negative (CWB) behaviors directed at the organization (OCB-Os; CWB-Os). Specifically, repeated reception of positive inputs from coworkers leads to reciprocation and the formation of climates encouraging focal employees to display more positive (e.g., helping; Organ et al., 2006) and less negative (e.g., incivility; Andersson & Pearson, 1999) interpersonal actions. When many engage in these behaviors over time, there will be a spillover effect for the organization as a whole.

Coworker support also promotes employee task performance. Making work tasks easier to execute by giving critical information about "knowing the ropes" processes (Kogler Hill, Bahniuk, & Dobos, 1989), by directly helping employees advance toward their work goals (Ensher, Thomas, & Murphy, 2001), and by facilitating smooth social transactions with coworkers (Deckop, Cirka, &

Andersson, 2003) can result in performance gains. Even when the motives for providing support are centered on the person at the receiving end (e.g., skill development), the net result of coworker support is an improvement in the focal employee's performance level.

Hypotheses 5a–5e: Coworker support has a negative relationship with focal employees' (a) CWB-I and (b) CWB-O, and coworker support has a positive relationship with (c) OCB-I, (d) OCB-O, and (e) task performance.

Moderated and Indirect Effects: Processes Linking Coworker Influences to Individual Outcomes

Thus far we have discussed the uniqueness of coworker (vs. leader) contributions to employee outcomes, and we have provided arguments for the importance of coworkers in shaping colleagues' role perceptions, attitudes, withdrawal, and effectiveness. Still, a vital process-related question remains: *How* do coworkers make the place? In attempting to answer this question, we turn to finer grained or more nuanced aspects of coworker effects. First, we explore whether coworkers directly affect their colleagues' performance or whether they instead do so indirectly through role perceptions and attitudes. Second, we propose and test several forms of differentiated (moderated) influences, which are based on the *valence* of coworker actions, the *content* of support, the *severity* of antagonism, and the *social intensity* of a focal employee's tasks.

Mediation Through Role Perceptions and Work Attitudes

How do coworkers contribute to their colleagues' work effectiveness, especially their job performance? Two theory-based arguments can be made for indirect (fully mediated) versus direct (partially mediated or unmediated) connections. One possibility is for coworker influences to primarily—perhaps exclusively—affect how their colleagues perceive and shape their work roles, and how they form, retain, and access work attitudes. These role perceptions and attitudes, in turn, carry forward to changes in performance (Kahn et al., 1964). Another possibility specifies coworkers lending a hand, almost literally. Coworker support and antagonism adds to (or subtracts from) individual performance itself, perhaps by affecting behavioral resources or by contributing unique inputs that enhance or detract from individual productivity or quality (Duffy et al., 2002). Coworkers can help lighten the load of an individual's work output—putting their shoulder to the proverbial wheel and extending assistance—or they can make it heavier. To examine the two possibilities, we test the fit of mediated models of coworker influence, and we propose that coworkers' influence on their colleagues' performance is explained only in part by how they shape the role perceptions and work attitudes of these focal employees.

Hypotheses 6a–6b: Coworker (a) support and (b) antagonism have a unique association with focal employees' performance beyond that of role perceptions and work attitudes.

Moderation by the Valence of Coworker Behaviors

In addition to the hypotheses above connecting *coworker support* to focal employee outcomes, we empirically track how *co-*

worker antagonism is related to and opposite in sign to the same criteria. Although some of the arguments for the relationship between coworker antagonism and individual outcomes run in counter directions to those for support (e.g., that antagonism should reduce a focal employee's engagement in OCB-I is based on negative reciprocity arguments), they are unlikely to be perfectly balanced endpoints of the same continuum. Whether they pertain to social stimuli (Skowronski & Carlston, 1989; Taylor, 1991), affect (Cacioppo, Gardner, & Berntson, 1999), or relationships at work (Labianca & Brass, 2006), positive and negative influences are neither completely redundant nor wholly symmetric in their effects. One valence can be more important for some consequences than others; when perceiving roles, forming attitudes, modulating inputs, and enacting behaviors, focal employees may have different motivations, depending on the valence of their coworkers' influence.

That is, in any work organization, employees are exposed to both positive and negative stimuli from coworkers, and they engage in sense-making or attribution about the sources and causes of them (Green & Mitchell, 1979). Because it is likely to be seen as a background pattern of expected behavior, we assert that most forms of coworker *support* will be perceived as generic, common, and widely spread through an organization. This kind of consensus (the extent to which a behavior pattern is perceived as similar across different people) leads to a broader, situational attribution for the behavior (Kelley, 1973). We anticipate that most coworkers routinely engage in support—support is the norm, and antagonism is the exception—which makes support more likely to be attributed to the organizational environment. Furthermore, if support attributions are directed, at least in part, toward the firm as a whole, this will further create positive attitudes about the *organization* (and one's position in it) as well as subsequent individual engagement in behaviors directed at sustaining it.

Hypotheses 7a–7d: Coworker support has a stronger relationship than antagonism with work attitudes, including (a) job satisfaction and (b) organizational commitment, as well as with organizationally oriented outcomes, including (c) CWB-O and (d) performance.

A different process might operate for coworkers' antagonistic behaviors, which are more likely to be perceived as low on the consensus dimension, or as uniquely associated with their distinct, personal source (Kelley, 1973). First, antagonism is likely a low base-rate phenomenon in most organizations; when it occurs, it will "stick out" and be noticed. Second, negative events loom larger because human cognitive systems are especially sensitized to perceive and to respond to threats (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Skowronski & Carlston, 1989). Such distinctiveness can help with attributing such behaviors to isolated individuals, and focal employees are more likely to respond dyadically. This is consistent not only with reciprocation norms (e.g., Gouldner, 1960) but also with target similarity (Lavelle, Rupp, & Brockner, 2007). When antagonized, employees will thus engage in higher levels of interpersonal deviance (CWB-I) or lower levels of assistance or extra-role behavior targeted at specific others (OCB-I).

Hypotheses 8a–8b: Coworker antagonism has a stronger relationship than coworker support with interpersonally oriented outcomes, including (a) CWB-I and (b) OCB-I.

Moderation by Content of Support, Severity of Antagonism, and Social Intensity

We continue to expound on the idea that coworker influences have differential effects, here as a function of support *content* (nature of what is provided) and antagonism *severity*.² Researchers in domains as diverse as stress (Schaefer, Coyne, & Lazarus, 1981), close relationships (Cutrona & Russell, 1987), social exchange (Cropanzano & Mitchell, 2005), and group member interactions (Hackman, 1992) have several classification schemes for other forms of content. Cutrona and Russell's (1987) examination of many of the bases of these and other typologies (e.g., Cohen & Wills, 1985; Kahn, 1979) led to a distinction between interpersonal resources that provide expressive or *affective* support (through emotional routes; Cobb, 1979) and those offering task-related or *instrumental* support (through information or behavioral assistance; Schaefer et al., 1981). Manifestations of affective support include displays of positive emotion, including friendliness (Morgeson & Humphrey, 2006) and solidarity (Koster & Sanders, 2006). Instrumental support ranges from task-directed helping (Caplan et al., 1975) to coworker mentoring (Ensher, Thomas, & Murphy, 2001) and horizontal communication (Kramer, 1996). Each of these forms can be tied most strongly to be a particular subset of employee outcomes.

Affective support starts with discrete events, such as complimentary feedback or empathizing with coworkers (Weiss & Cropanzano, 1996). Through repeated interactions, such affective support generates expressive relationships and the formation of stable attitudes, such as satisfaction, involvement, and a desire to maintain organizational membership. Affective content emanating from coworkers should have a stronger influence than instrumental content on focal employees' work attitudes, for several reasons. First, this content of support and attitudes share a common affective substrate (affect is a major determinant of attitude; Thoresen, Kaplan, Barsky, Warren, & de Charmont, 2003). In addition, affective support (originating from coworkers) has a broadening impact on employees' perceptions and actions and a positive influence on social relationships in general, beyond a particular dyad (see Fredrickson, 1998, for a review of the affect-based broaden-and-build model). Although affective support comes from a particular coworker, affect broadens the focal employee's action repertoire, sparking reciprocation to *others* (more positive affect, more acts of kindness). In time, this generates a reinforcing cycle, translated further into satisfaction with, involvement with, and commitment to the organization.

Hypotheses 9a–9c: Coworker support with affective content has a stronger relationship with focal employee work attitudes, (a) job satisfaction, (b) job involvement, and (c) organizational commitment than coworker support based on instrumental content.

As opposed to affective support, information and behavioral assistance from a coworker (the latter is akin to *service* in Foa & Foa's, 1976, typology)—*instrumental* support—carries an explicit

or implicit intent to aid in task completion. Helping someone who is temporarily overburdened with work, or providing tacit knowledge about how to more effectively carry out an assignment, is aimed toward and leads to an improvement in focal employee performance (Organ et al., 2006). In addition, the instrumental support of “lending a hand” is easier to mark and hold in a mental account than is affective support. It cues an interpersonal pattern of turn-taking (Kelley & Thibaut, 1978) as well as the universal norm of reciprocity (Gouldner, 1960), whereby focal employees feel compelled to respond with similar support back to their coworker (OCB-I).

Hypotheses 10a–10b: Coworker support with instrumental content has a stronger relationship with work effectiveness, including (a) OCB-Is and (b) task performance, than coworker support with affective content.

Coworker antagonism can also vary on the basis of severity: the harshness of the action emanating from one's coworkers. Weaker forms include being incivil (e.g., excluding a colleague from social conversations; G. Blau & Andersson, 2005) or engaging in social undermining (Duffy et al., 2002). Stronger, sharper forms include harassment, interpersonal abuse, and physical aggression (Bartlett, 2001; Bruk-Lee & Spector, 2006). That is, *high-* rather than *low-severity* antagonistic actions are characterized by a greater outlay of sustained effort (rather than merely passive neglect) and are more pronounced in their deviation from norms of appropriateness. Both features make them more salient to focal employees (Baumeister et al., 2001). Antagonistic actions with high level of severity should be easily seen, remembered, and used when evaluating the social environment and possibly when providing “tit for tat” reciprocation to a coworker. Less severe forms will more likely fade into the cognitive background of the receiving employee (Green & Mitchell, 1979) and should therefore have a lower impact on attitudes, such as job satisfaction, as well as on retaliatory behaviors (CWB-Is).

Hypothesis 11: High severity coworker antagonism has a stronger relationship with focal employee outcomes than lower severity antagonism.

Moving from characteristics of the coworker actions themselves to the environment in which it is delivered, we focus on the tasks performed by the focal employee and his or her coworkers. Consistent with theories of work adjustment and vocational choice (e.g., Dawis & Lofquist, 1984; Holland, 1959) jobs and occupational clusters differ in what we refer to as *social intensity*: the extent to which employees are required to account for and incorporate interpersonal information from their environment into the processes needed to successfully carry out their jobs (Morgeson &

² Although support and antagonism are theoretically independent, negatively valenced forms of influence have seen much less investigation, and it is not possible to distinguish them by content for the current meta-analysis. Likewise, positively valenced forms of support have not been differentiated enough in the literature by their severity or the extent of positive deviance (Warren, 2003). Hence, it is not possible to have a fully crossed examination of support versus antagonism by content versus severity.

Humphrey, 2006). These social intensity requirements can accentuate or attenuate the direct relationships described in our main model. Unlike in primarily technical positions (e.g., programmers), employees in jobs with more intense social requirements (e.g., nurses, counselors, salespeople) are not only in permanent contact with those situated at the receiving end of interpersonal services (patients, clients, customers) but they can also rely to a greater extent on resources from their coworkers to clarify various social aspects of the job or help with task execution (de Jong & de Ruyter, 2004). That is, their social environment has a richer set of cues and a more prominent set of demands, and the employees themselves are more strongly embedded within it. Further, their continued work in the organization and their satisfaction with the job should depend more on coworkers than in jobs in which such social demands are lower.

Hypothesis 12: Coworker support in jobs with high social intensity has a stronger relationship with individual outcomes than in jobs with low social intensity.

Method

Identification of Studies

To test our hypotheses, we identified as many relevant published and unpublished studies as possible. To do so, we searched databases in applied psychology and the social and organizational sciences. We used combinations of keywords—such as *coworker*, *lateral*, and *dyadic*; along with *work*, *team*, or *task*; or *job*—to restrict our search to the domain of work-related studies. These keywords were combined with words and phrases (and their synonyms) indicative of our effects of interest. For example, labels for independent variables that were subsumed under the scope of our broad construct, coworker support (of both instrumental and affective types), included lateral exchanges (Sherony & Green, 2002), coworker mentoring (Ensher, Thomas, & Murphy, 2001), belongingness (Roe, Zinovieva, Dienes, & Ten Horn, 2000), friendliness (Morgeson & Humphrey, 2006), and other terms. Likewise, labels for variables subsumed under coworker antagonism included behaviors such as incivility (Andersson & Pearson, 1999), social undermining (Duffy et al., 2006), interpersonal abuse (Bruk-Lee & Spector, 2006), and their variants. For our dependent constructs, labels were more straightforward and consensual in the literature. For instance, we used *role ambiguity* (*role clarity*), *role conflict*, and *role overload* (and related terms, such as *work load*, *job demands*, and *time pressure*) for role perceptions; *job satisfaction*, *organizational commitment*, and *job involvement* for work-related attitudes, and so on. We combined phrases using Boolean operators.

We performed our searches in the following databases: ABI/Inform, Academic Ideal, Current Contents, Dissertation Abstracts, EBSCO, ERIC, Science Direct, ProQuest, PsycLit, PsycInfo, Sociological Abstracts, JSTOR, Google Scholar, and Web of Science. We also searched for possible unpublished and in-press studies by sending e-mail solicitations to members of the Academy of Management list servers (Organizational Behavior, Human Resource, and Research Methods divisions) as well as by directly contacting authors in the area of coworker research. We also did a manual search of the past three years of research in the *Journal of Applied Psychology*, *Journal of Occupational Health Psychology*, *Group and Organization Management*, *Personnel Psychology*, and

Work & Stress, which did not add new studies to our meta-analytic database. This strategy generated 161 independent samples and 77,954 employees, which is comparable in size and scope with recent summaries of the leadership constructs (e.g., consideration: 163 samples, 20,963 employees; and initiating structure: 159 samples, 20,431 employees; Judge, Piccolo, & Ilies, 2004).

Criteria for Inclusion and Exclusion

Original studies had to meet specific parameters to be included in the meta-analytic database. First, we focused on samples of adults, working in their jobs in ongoing organizations. That is, we only included studies that took place under “field” conditions or natural contexts. Second, we included only studies whereby effects dealt with, at least in part, identifiable sets of coworkers rather than the effects that could be conflated with supervisor or direct leader, or with the organization and its top management. For example, many studies exist for mentor influences on individual and organizational outcomes, but we used only those studies that isolated coworker mentoring. Finally, we bounded our studies to include those in which the focal employee (ego) described components of their lateral social context, exchanges, or support of resources by coworkers (alters). We did not examine the reverse, how coworkers (alters) were perceived to respond to the focal employee’s (ego’s) own behavior.

Coding Scheme and Study Characteristics

Using procedures recommended by Lipsey and Wilson (2001), we developed a system for classifying coworker behaviors on the basis of valence (positive: support vs. negative: antagonism), content of support (affective and instrumental), and severity of antagonism (high and low). Prototypical statements for positive and negative *valence* of coworker actions were “helps with a difficult task” and “gives me incorrect or misleading information,” respectively. Moving to the *content* of coworker support, “helps me with getting the job done” and “gives me work-related information” illustrate *instrumental support*; “cheers me up” and “is understanding or sympathetic” are representative of *affective support*. Further, antagonistic behaviors were also coded from *low severity* (including incivility and social undermining; “delayed information to slow you down”) to *high severity* (i.e., conflict, aggression; “got into arguments with you”).

After identifying studies with unique occupations ($N = 50$), consistent with prior work (e.g., Dierdorff & Morgeson, 2007), we used the U.S. Department of Labor’s Occupational Information Network (O*NET) to determine how to systematically separate our studies along the *social intensity* dimension. The O*NET database offers extensive job or position information, on the basis of a theoretical structure (Mumford & Peterson, 1999; Peterson et al., 2001). We created an index capturing low and high social intensity, on the basis of O*NET variables offering socially related information from various perspectives, including seven available variables in the O*NET database for “helping and providing service,” “relationship-mean extent,” “cooperation,” “concern for others,” “social orientation,” “social perceptiveness,” and “establishing and maintaining interpersonal relationships.” A principle axes factor analysis strongly supported our a priori, single-factor

structure (with loadings higher than 0.72% and 74.42% explained variance by the social intensity factor).

For individual outcome variables that were not isomorphic with our corresponding labels, or for those that were more ambiguous (e.g., variations of citizenship behaviors), we based our coding decisions on prior meta-analytic, theoretical, and empirical investigations. For example, meta-analyses (e.g., LePine, Erez, & Johnson, 2002) and other studies (Coleman & Borman, 2000; Organ et al., 2006; Podsakoff, MacKenzie, Paine, & Bacharach, 2000) describe OCB-Is as altruism, courtesy, and helping. Conversely, OCB-Os are presented as consisting of consciousness, civic virtue, and sportsmanship. Finally, we further coded original studies for the source of evidence about the focal employees' behaviors (e.g., self-reported or supervisor-reported).

Meta-Analytic Techniques

We calculated effect sizes using the methods described by Hunter and Schmidt (2004) because they allow for adjustments in observed effect sizes and correction for study artifacts, such as sampling error and unreliability. Specifically, we performed reliability corrections for both our independent and dependent variables. In addition to correcting for these artifacts within each study (Hunter & Schmidt, 2004), when original studies did not report estimated reliabilities, we used an imputation procedure based on the average reliability estimated from the other studies that examined the same relationship (e.g., Balkundi & Harrison, 2006).

In addition, we had to ensure that the effect sizes included in our meta-analysis were independent. Hence, when the original studies provided multiple estimates of the correlation within a single sample between a predictor (X) and a criterion (Y), such as when there were several (same-source) measures of Y, we combined them into one correlation by using the formula for composites (Hunter & Schmidt, 2004), or we averaged them if the correlations between dimensions were not reported in the original study. This kept samples from contributing more than one effect size to cumulative meta-analytic estimates (i.e., no double-counting).

Consistent with Hunter and Schmidt (2004), to test specific moderators, we created subsets of correlations based on our a priori moderator hypotheses. That is, we created subsets of effect sizes (e.g., coworker support vs. antagonism; low vs. high social intensity) and we inferred moderation based on between-subsets differences in mean estimated effect sizes and their confidence intervals. We based mediation tests on meta-analytic correlation matrices created using data from our meta-analytic database (for Hypothesis 1), and we supplemented them with effect sizes from other meta-analyses (for Hypothesis 6; Viswesvaran & Ones, 1995).

Results

We tested our formal hypotheses using the meta-analytic methods described above. In addition to presenting main effect results for coworker support in Tables 3–6, in the spirit of comprehensiveness that is endemic to meta-analysis, we also present results for antagonism alongside them (although they are not present explicitly in Hypotheses 2–5). As we mention below, for some of these and other tests, we were restricted in the scope of our

empirical validation to the effect sizes for which there were enough primary studies to provide data.

Comparative Coworker and Leader Influences

To establish the importance of coworker effects, we tested whether lateral and vertical influence might be interchangeable parts in the social environment at work, in terms of having no unique simultaneous coworker and leader statistical effects. Of the 161 primary investigations in our database, 72 contained included *both* coworker- and leader-related information in the same study. These data allowed a direct within-sample comparison of the simultaneous effect of coworker support and leader support (correlated $\bar{\rho} = .404$ across 64 subsamples), as well as coworker antagonism and leader antagonism (correlated $\bar{\rho} = .363$, within eight studies). Consistent with current guidelines (e.g., Viswesvaran & Ones, 1995), we used these simultaneous effect sizes to create three-variable correlation matrices that included our two predictors (e.g., coworker and leader support) and each separate criterion for which we had available data. We were limited to effect sizes reported in the primary studies, which allowed the creation of 14 such correlation matrices. These included most of the outcomes for support (except CWBs and OCB-Is) but only two outcomes for antagonism (role ambiguity and role conflict; see Table 1). The estimation was based on the harmonic mean of the sample sizes from the original studies. Table 1 provides standardized coefficients and sample sizes (as well as *ks* and harmonic means) for our comparisons of coworker and leader effects.

The results indicate that coworkers matter uniquely—when associations of leader support with outcome variables are partialled or accounted for and considered simultaneously. Hypothesis 1 was supported. In fact, in addition to many outcome domains in which coworker predictors are associated with the outcomes as strongly as the direct leader ones, coworker support was more predictive than leader support for job involvement ($\bar{\rho} = .33$ and $\bar{\rho} = .06$ for coworker support and leader support, respectively) and could play a crucial role for most of the withdrawal-related criteria (e.g., $\bar{\rho} = -.22$ vs. $\bar{\rho} = -.04$ for effort reduction, and $\bar{\rho} = -.08$ vs. $\bar{\rho} = -.01$ for absenteeism, coworker and leader support, respectively).

Another way to examine our first hypothesis is to compare unadjusted correlations. The comparison appears in Table 2, where we present our 30 effect sizes for coworker support (15) and coworker antagonism (15) together with available effect sizes from meta-analyses of leadership constructs (median values are used when several published meta-analytic effect sizes exist). Overall, our estimated associations of leader influences with work outcomes were consistent in size and direction with prior meta-analyses. Given that our investigation is more comprehensive on the criterion side than prior meta-analyses of leader effects, the comparison is limited to the outcomes available in current meta-analytic work (i.e., there is no comparative information for role overload, absenteeism, and both types of CWBs). The values in Table 2 make a case for greater attention to lateral relationships in organizational research. Cumulative effect sizes for coworker influences tend to be as large as, and in many instances larger than, parallel effect sizes for leader influences.

Table 1
Comparison of Coworker Support (and Antagonism) Standardized Coefficients With Leader Support (and Antagonism) Standardized Coefficients, Jointly Predicting Employee Individual Outcomes

Predictor to dependent variables	Role perceptions			Work attitudes			Withdrawal			Effectiveness		
	RA	RC	RO	JS	JI	OC	ER	ABS	ITQ	T	OCBOs	P
Coworker support	-.27	-.19	-.15	.27	.33	.20	-.22	-.08	-.18	-.13	.02	.17
Leader support	-.39	-.22	-.22	.32	.06	.34	-.04	-.01	-.25	-.13	.29	.11
<i>k</i>	14	11	5	17	3	9	3	4	10	7	3	11
<i>N</i> (harmonic mean)	21,964	7,264	5,020	18,901	757	5,153	2,508	3,423	9,334	1,858	786	3,255
Coworker antagonism	.31	.46										
Leader antagonism	.28	.04										
<i>k</i>	3	3										
<i>N</i> (harmonic mean)	3,550	3,252										

Note. Standardized coefficients are reported, significant at $p < .05$ for values exceeding 1.071 in either negative or positive direction. Abbreviations for criteria: RA = role ambiguity; RC = role conflict; RO = role overload; JS = job satisfaction; JI = job involvement; OC = organizational commitment; ER = effort reduction; ABS = absenteeism; ITQ = intention to quit; T = turnover; OCBOs = organizational citizenship behaviors (organization-directed); P = performance.

Coworker Influences on Individual Role Perceptions

Having thus far established that coworkers clearly do help make the place, even accounting for leader influences, we turn to separate individual outcomes. In Hypotheses 2a, 2b, and 2c, we proposed negative relationships between coworker support and role ambiguity, role conflict, and role overload, respectively. Coworker support is indeed associated with reduced levels of these (detrimental) aspects of role perceptions. The average corrected correlations were $\bar{r} = -.416$ ($k = 44, N = 30,068$) for role ambiguity, $\bar{r} = -.273$ ($k = 18, N = 13,523$) for role conflict, and $\bar{r} = -.224$ ($k = 27, N = 9,013$) for role overload (see Table 3). In addition to calculating effect sizes, we conducted file-drawer analyses

(Rosenthal, 1979) to check whether our findings are robust to potential unpublished studies. Specifically, fail-safe numbers provide an indication on how many additional samples with null effects would be necessary to cast doubt on the robustness of our results. The analysis indicates that our findings are dependable, with fail-safe numbers of studies at $k = 370, 97,$ and 119 for each respective role perception.

Coworker Influences on Individual Work Attitudes

In our second group of hypotheses, we proposed that coworker support positively predicts job satisfaction (Hypothesis 3a), job involvement (Hypothesis 3b), and organizational commitment

Table 2
Comparison of Coworker Support and Antagonism Effect Sizes With Leader Effect Sizes

Predictor to dependent variables	Role perceptions			Work attitudes			Withdrawal				Effectiveness				
	RA	RC	RO	JS	JI	OC	ER	ABS	ITQ	T	CWBIs	CWBOs	OCBIs	OCBOs	P
Coworker support	-.42	-.27	-.22	.40	.35	.34	-.23	-.08	-.27	-.17	-.07	-.04	.19	.12	.21
Coworker antagonism	.39	.48	.24	-.30		-.25			.26	.22	.25	.35	-.24		-.11
Leader effect: Median of ...	-.33	-.31		.42	.27	.29			-.31	-.14			.08	.06	.21
Transformational ^b				.58											
Laissez-faire ^b				-.28											
Contingent reward ^{b,h}	-.42			.58		.43			-.32				.16	.12	.21
Initiating structure ^{c,d,e,f}	-.43	-.32		.30		.29									.11
Consideration ^{c,d,e,f,g}	-.46	-.42		.53	.27	.42									.25
Noncontingent reward ^h	.04			.17		.06							.08	.06	.03
Contingent punishment ^h	-.23			.12		.19							.03	-.05	-.09
Noncontingent punishment ^h	.32			-.39		-.30			.31				-.14	-.16	-.15
Leader-member exchange ^{i,j,k}	-.43	-.31		.50		.42			-.31	-.14			.38	.21	.11

Note. Abbreviations for criteria: RA = role ambiguity; RC = role conflict; RO = role overload; JS = job satisfaction; JI = job involvement; OC = organizational commitment; ER = effort reduction; ABS = absenteeism; ITQ = intention to quit; T = turnover; CWBIs = counterproductive work behaviors (individual-directed); CWBOs = counterproductive work behaviors (organization-directed); OCBIs = organizational citizenship behaviors (individual-directed); OCBOs = organizational citizenship behaviors (organization-directed); P = performance.

Sources: ^a Median of effect sizes from leadership meta-analyses (figures are in the filled cells of each column). ^b Judge and Piccolo (2004). ^c Judge, Piccolo, and Ilies (2004). ^d Jackson and Schuler (1985). ^e Wofford and Liska (1993). ^f Mathieu and Zajac (1990). ^g S. P. Brown (1996). ^h Podsakoff, Bommer, Podsakoff, and MacKenzie (2006). ⁱ Gerstner and Day (1997). ^j Ilies, Nahrgang, and Morgeson (2007). ^k Griffeth, Hom, and Gaertner (2000).

Table 3
Meta-Analytic Relationships of Coworker Support and Antagonism With Employee Role Perceptions

Dependent variable with independent variables	<i>k</i>	<i>N</i>	Mean <i>r</i>	Variance <i>r</i>	95% confidence interval	Estimated $\bar{\rho}$	Variance $\bar{\rho}$	80% credibility interval
<i>Role ambiguity</i> with								
Coworker support	44	30,068	-.337	.005	-.347, -.327	-.416	.008	-.533, -.299
Coworker antagonism	5	4,097	.318	.011	.296, .340	.391	.016	.227, .555
<i>Role conflict</i> with								
Coworker support	18	13,523	-.210	.007	-.227, -.199	-.273	.012	-.413, -.133
Coworker antagonism	4	3,778	.430	.006	.422, .448	.479	.012	.338, .620
<i>Role overload</i> with								
Coworker support	27	9,013	-.190	.008	-.207, -.173	-.224	.012	-.364, -.085
Coworker antagonism	1	198	.180			.245		

(Hypothesis 3c). As shown in Table 4, a positive connection between coworker support and job satisfaction ($\bar{\rho} = .404$) is indicated across $k = 100$ studies based on sample of $N = 31,966$. The pattern is maintained for job involvement ($\bar{\rho} = .353$, $k = 35$, $N = 11,182$) and organizational commitment ($\bar{\rho} = .317$, $k = 56$, $N = 19,334$). All of these results are consistent with our propositions and are resistant to unpublished studies with potential null effect sizes (fail-safe $k = 800$, 245, and 381 for each attitude, respectively).

Coworker Influences on Individual Withdrawal

Our meta-analytic tests also suggest that coworker support can play a part in various forms of distancing oneself from one's job (Hypotheses 4a–4d), with results reported in Table 5. Coworker support is associated with less effort reduction (i.e., more effort), $\bar{\rho} = -.227$ ($k = 8$, $N = 2,217$), and fewer absences from work, $\bar{\rho} = -.083$ ($k = 26$, $N = 7,601$). Similarly, there is a negative connection between coworker support and a focal employee's intention to quit, $\bar{\rho} = -.265$ ($k = 43$, $N = 15,604$), as well as actual quitting, $\bar{\rho} = -.168$ ($k = 5$, $N = 1,442$). Although the

pattern of relationships is consistent with our hypotheses, the effect sizes are much smaller—especially for absenteeism—than the perceptual and attitudinal variables considered above. Note that both absenteeism and turnover are taken from different sources of data than the coworker support measures, and their corresponding effects sizes are therefore not affected by potential common method variance. These hypotheses would lose empirical backing if $k = 37$, 42, 232, and 17 null findings, respectively for each criterion, were added to the cumulation.

Coworker Influences on Individual Effectiveness

We also connected coworker support with various aspects of focal employee effectiveness, defining the latter construct somewhat broadly (although not as broadly as others; see Harrison et al., 2006). Results are in Table 6. Evidence affirms the effectiveness-related predictions in Hypotheses 5a–5e. Coworker support is linked to both kinds of CWBs: CWB-I, $\bar{\rho} = -.071$ ($k = 1$, $N = 286$), and CWB-O, $\bar{\rho} = -.041$ ($k = 2$, $N = 629$). Results also indicate positive contributions of support to OCB-I ($\bar{\rho} = .194$, $k = 11$, $N = 2,514$), OCB-O ($\bar{\rho} = .115$, $k = 8$, $N = 1,550$), and

Table 4
Meta-Analytic Relationships of Coworker Support and Antagonism With Employee Work Attitudes

Dependent variable with independent variables	<i>k</i>	<i>N</i>	Mean <i>r</i>	Variance <i>r</i>	95% confidence interval	Estimated $\bar{\rho}$	Variance $\bar{\rho}$	80% credibility interval
<i>Job satisfaction</i> with								
Coworker support	100	31,966	.324	.017	.290, .358	.404	.033	.171, .637
Affective	17	10,228	.335	.009	.315, .354	.402	.013	.237, .567
Instrumental	17	3,977	.236	.009	.219, .254	.280	.014	.130, .430
Coworker antagonism	10	7,578	-.234	.010	-.213, -.256	-.298	.018	-.469, -.127
Low severity	3	3,236	-.171	.011	-.193, -.150	-.193	.013	-.034, -.044
High severity	7	4,342	-.299	.004	-.306, -.292	-.376	.007	-.048, -.271
<i>Job involvement</i> with								
Coworker support	35	11,182	.300	.011	.277, .323	.353	.013	.210, .496
Affective	8	4,247	.247	.007	.234, .261	.317	.009	.193, .441
Instrumental	3	797	.068	.001	.066, .070	.088	.001	.043, .133
Coworker antagonism								
<i>Organizational commitment</i> with								
Coworker support	56	19,334	.270	.011	.247, .292	.317	.018	.145, .488
Affective	12	5,644	.335	.016	.304, .367	.409	.027	.196, .620
Instrumental	9	1,960	.205	.011	.183, .228	.242	.169	.076, .408
Coworker antagonism	6	2,865	-.213	.004	-.204, -.221	-.250	.008	-.369, -.131

Table 5
Meta-Analytic Relationships of Coworker Support and Antagonism With Employee Withdrawal

Dependent variable with independent variables	<i>k</i>	<i>N</i>	Mean <i>r</i>	Variance <i>r</i>	95% confidence interval	Estimated <i>p</i>	Variance <i>p</i>	80% credibility interval
<i>Effort reduction</i> with								
Coworker support	8	2,217	-.181	.018	-.216, -.145	-.227	.022	-.419, -.035
Coworker antagonism								
<i>Absenteeism</i> with								
Coworker support	26	7,601	-.077	.001	-.078, -.075	-.083	.001	-.116, -.049
Coworker antagonism	3	2,959	.031	.002	.028, .035	.035	.002	.024, .044
<i>Intent to quit</i> with								
Coworker support	43	15,604	-.213	.005	-.223, -.203	-.265	.011	-.397, -.133
Coworker antagonism	3	1,309	.204	.001	.203, .205	.259	.001	.138, .290
<i>Turnover</i> with								
Coworker support	5	1,442	-.152	.006	-.164, -.140	-.168	.007	-.279, -.056
Coworker antagonism	1	260	.200			.221		

task performance ($\bar{p} = .235$, $k = 52$, $N = 13,363$). Fail-safe *ks* for some of these effects—CWB-I (1), CWB-O (2), OCB-I (42), and OCB-O (19)—are not as large as in other areas of our meta-analysis, reflecting substantially fewer studies and smaller sample sizes for some of the effectiveness outcomes. On the other hand, the robustness of findings for task performance (fail-safe $k = 206$) is much stronger.

Because some of the original studies collected data from a mix of self-reports and supervisor reports, it was possible to test whether our predicted relationships were robust across different

data sources. When comparisons were possible (see Table 6), effect sizes remained in the same direction across different raters of OCB dimensions and performance (for coworker support, given that the number of studies was too small to compare across sources for coworker antagonism). There was a predictable drop in magnitude, from $\bar{p} = .242$ to $\bar{p} = .207$ and from $\bar{p} = .194$ to $\bar{p} = .158$, in comparing same-source with cross-source correlations of coworker support and task performance and OCB-I, respectively. Yet, even when the independent and dependent variable came from

Table 6
Meta-Analytic Relationships of Coworker Support and Antagonism With Employee Effectiveness

Dependent variable with independent variables	<i>k</i>	<i>N</i>	Mean <i>r</i>	Variance <i>r</i>	95% confidence interval	Estimated <i>p</i>	Variance <i>p</i>	80% credibility interval
<i>CWB-I</i> with								
Coworker support	1	286	-.060			-.071		
Coworker antagonism	6	1,720	.216	.008	.200, .231	.254	.012	.109, .394
Low severity	2	901	.145	.001	.145, .146	.172	.001	.142, .202
High severity	4	819	.294	.004	.284, .303	.344	.008	.223, .465
<i>CWB-O</i> with								
Coworker support	2	629	-.035	.001	-.034, -.035	-.041	.001	-.052, -.031
Coworker antagonism	1	121	.290			.349		
<i>OCB-I</i> with								
Coworker support	11	2,514	.167	.003	.160, .175	.194	.005	.108, .280
Affective	5	1,381	.153	.005	.143, .162	.174	.006	.074, .274
Instrumental	4	1,223	.230	.004	.223, .236	.275	.004	.196, .354
Same source	1	123	.170					
Different source	10	2,391	.140	.005	.131, .149	.158	.006	.059, .256
Coworker antagonism	2	2,447	-.206	.000	-.206, -.205	-.238	.000	-.254, -.222
<i>OCB-O</i> with								
Coworker support	8	1,550	.099	.002	.094, .103	.115	.003	.042, .189
Same source								
Different source	8	1,550	.099	.002	.094, .103	.115	.003	.042, .189
Coworker antagonism								
<i>Task performance</i> with								
Coworker support	52	13,363	.200	.023	.154, .244	.235	.031	.001, .461
Affective	6	1,999	.096	.015	.066, .126	.117	.023	.076, .151
Instrumental	11	3,132	.315	.051	.213, .416	.369	.072	.024, .713
Same source	31	8,863	.202	.021	.160, .244	.242	.031	.016, .466
Different source	21	4,500	.185	.030	.126, .243	.207	.021	-.035, .450
Coworker antagonism	2	501	-.098	.001	-.010, -.097	-.111	.001	-.145, -.076

Note. CWB-I = counterproductive work behaviors (individual-directed); CWB-O = counterproductive work behaviors (organization-directed); OCB-I = organizational citizenship behaviors (individual-directed); OCB-O = organizational citizenship behaviors (organizational-directed).

different observers, there was a reliable connection. There were no same-source effect sizes for OCB-O, so the support of Hypothesis 5d is not inflated by potential common method variance.

Indirect (Mediated) Versus Direct Effects on Performance

We used meta-analytic structural equation modeling (Viswesvaran & Ones, 1995) to test that effects of coworker support and coworker antagonism (Hypotheses 6a–6b) on focal employee performance are partially rather than fully mediated by role perceptions and work attitudes. Consistent with prior investigations that used similar techniques (e.g., Colquitt, LePine, & Noe, 2000; Gajendran & Harrison, 2007), we restricted our analyses to models for which (a) effects existed in our meta-analytic database and (b) we were able to fill missing cells in the meta-analytic correlation table with effect sizes from other cumulative research. Specifically, we used other meta-analyses for effect sizes (i.e., role ambiguity and role conflict to performance: Jackson & Schuler, 1985; job satisfaction to performance: Judge, Thoresen, Bono, & Patton, 2001; and organizational commitment to performance: Meyer, Stanley, Herscovitch, & Topolnysky, 2002). We dealt with unequal sample sizes across meta-analytic cells by calculating and using the harmonic mean, and we relied on maximum likelihood estimation methods because they allow ilx^2 comparisons of fully and partially mediated models.

As a result of these decisions and the constraints in the original effect sizes, we tested role ambiguity, role conflict, job satisfaction, and organizational commitment as potential mediators of how coworker behaviors are related to their colleagues' individual performance. Coworker support had a unique effect on individual performance, even after allowing for possible mediation of role ambiguity, $ilx^2 = 797.69$, $13 = .22$, $p < .001$ (all reported differences are on one degree of freedom, and all beta coefficients represent standardized values); role conflict, $ilx^2 = 676.91$, $13 = .23$, $p < .001$; job satisfaction, $ilx^2 = 291.67$, $13 = .13$, $p < .001$; and organizational commitment, $ilx^2 = 638.32$, $13 = .21$, $p < .001$. Because coworkers had a significant path through role perceptions and attitudes in these models, it has *both* indirect and direct effects, and a partial mediation conclusion is merited.

Coworker antagonism results are based on far fewer studies, but they are nearly as consistent in demonstrating unique effects. Specifically, antagonism had three of four unique (negative) effects on performance, even though mediators were present in the model: role ambiguity, $ilx^2 = 5.29$, $13 = -.08$, $p < .05$; role conflict, $ilx^2 = 7.00$, $13 = -.10$, $p < .05$; job satisfaction, $ilx^2 = 0.48$, $13 = -.02$, *ns*; and organizational commitment, $ilx^2 = 5.18$, $13 = -.08$, $p < .05$. These patterns of evidence are consistent with the predictions of direct coworker contributions to individual performance in Hypotheses 6a and 6b. It is also important to note that common method variance is of a lesser concern in these empirical tests, given that performance data in many of the original studies were collected from a different source than the predictors and the individual perception and attitude mediators. Each predictor and mediator would have been more overlapping and, hence, *less* likely to show *unique* effects.

Differential (Moderated) Coworker Influences

Positive versus negative valence. We used attribution-based arguments to contend that the effects of coworker resources would

be moderated by their valence. Positive coworker behaviors (support) were hypothesized to have a stronger relationship than negative coworker behaviors (antagonism) with more organizationally directed attitudes, including job satisfaction (Hypothesis 7a) and organizational commitment (Hypothesis 7b). In accord with Hypotheses 7a and 7b, Table 4 shows that links from coworker support to these work attitudes ($\bar{\rho} = .404$ for job satisfaction, and $\bar{\rho} = .317$ for organizational commitment) were stronger when compared in absolute terms with the parallel connections for coworker antagonism ($\bar{\rho} = -.298$ and $\bar{\rho} = -.250$).

Similarly, we proposed that coworker support has a stronger relationship than antagonism with organizationally directed behaviors, including CWB-O (Hypothesis 7c) and task performance (Hypothesis 7d). Average corrected correlations were larger for task performance when it was predicted by coworker support ($\bar{\rho} = .235$) than by coworker antagonism ($\bar{\rho} = -.111$). However, the pattern was reversed for CWB-O, which was predicted better by antagonism ($\bar{\rho} = .349$) than by support ($\bar{\rho} = -.041$; see Tables 6 and 7), supporting only Hypothesis 7d. There were no data available to test other theoretically justifiable outcomes (e.g., job involvement, CWB-Os).

We forwarded arguments that the undesirable behaviors of antagonism would be more influential than the desirable resources of coworker support when the outcomes dealt with interpersonal behaviors (CWB-I and OCB-I; Hypothesis 8a and Hypothesis 8b). The meta-analytic data lend credence to this idea. The average corrected correlations were larger for antagonism predicting CBW-I ($\bar{\rho} = .254$) and OCB-I ($\bar{\rho} = -.238$) than support predicting CBW-I ($\bar{\rho} = -.071$) and OCB-I ($\bar{\rho} = .194$; see Table 6). Overall, the findings across dozens of studies show that valence of coworker support differentially predicts individual work attitudes and behaviors in a theoretically justified manner.

Affective versus instrumental content. We proposed that affective coworker resources would have a stronger link with work attitudes, including job satisfaction (Hypothesis 9a), job involvement (Hypothesis 9b), and organizational commitment (Hypothesis 9c) than would instrumental resources. In contrast, instrumental coworker support was predicted to have a stronger impact than affective support on outcomes such as OCB-I (Hypothesis 10a) and task performance (Hypothesis 10b; although predictions were theoretically justifiable, the data set did not allow parallel tests for job involvement and OCB-O). Our predictions were strongly borne out in the meta-analytic results (see Table 4). Correlations of affective versus instrumental support were $\bar{\rho} = .402$ versus $.280$ for job satisfaction; $\bar{\rho} = .317$ versus $.088$ for job involvement; and $\bar{\rho} = .409$ versus $.242$ for organizational commitment. Similar results are presented in Table 6 for the reverse order: instrumental versus affective coworker resources predicting elements of effectiveness. We observed stronger links of instrumental support with OCB-I ($\bar{\rho} = .275$) and task performance ($\bar{\rho} = .369$) than of affective support ($\bar{\rho} = .174$ and $.117$, respectively). The content of coworker support matters for some outcomes more than others, in a predictable way.

Severity of coworker antagonism. In Hypothesis 11, we proposed that more severe forms of antagonism have a stronger impact on focal employee outcomes. The data available allowed for a test of this prediction only for (a) job satisfaction and (b) CWB-Is. Table 4 shows that job satisfaction is indeed more strongly linked to high-severity ($\bar{\rho} = -.376$) than low-severity ($\bar{\rho} = -.193$) antagonism. The pattern is maintained in Table 6 for

Table 7
Meta-Analytic Relationships of Coworker Support With Outcomes in Low and High Social Intensity Task Environments

Dependent variable with independent variable	<i>k</i>	<i>N</i>	Mean <i>r</i>	Variance <i>r</i>	95% confidence interval	Estimated <i>p</i>	Variance <i>p</i>	80% credibility interval
Role ambiguity with Coworker support								
Low social intensity	4	611	-.229	.019	-.266, -.192	-.289	.029	-.510, -.007
High social intensity	14	17,247	-.317	.006	-.330, -.310	-.382	.008	-.500, -.264
Role conflict with Coworker support								
Low social intensity	6	1,147	-.130	.001	-.164, -.112	-.163	.001	-.199, -.128
High social intensity	9	10,855	-.230	.004	-.244, -.357	-.301	.006	-.406, -.195
Job satisfaction with Coworker support								
Low social intensity	9	5,337	.217	.001	.203, .231	.253	.011	.122, .384
High social intensity	73	29,554	.342	.014	.312, .371	.422	.025	.219, .625
Intent to quit with Coworker support								
Low social intensity	3	1,068	-.116	.008	-.133, -.099	-.131	.009	-.254, -.007
High social intensity	26	11,241	-.201	.003	-.207, -.195	-.250	.008	-.364, -.135
Task performance with Coworker support								
Low social intensity	4	1,107	.132	.006	.121, .144	.153	.008	.038, .271
High social intensity	29	7,076	.171	.007	.157, .184	.202	.011	.066, .338

CWBs, which are associated more with higher ($\bar{p} = .344$) as compared with lower ($\bar{p} = .172$) levels of antagonism severity.

Social intensity of the task environment. Finally, we conducted a meta-analytic comparison for Hypothesis 12, that high social intensity accentuates the relationship between coworker support and individual outcomes. Available data allowed moderator tests for role ambiguity, role conflict, job satisfaction, intent to quit, and performance. On the basis of a sample of 50 studies, we found (see Table 7) that coworker support is a stronger contributor to role ambiguity, role conflict, and intent to quit under high ($\bar{p} = -.382$, $\bar{p} = -.301$, and $\bar{p} = -.289$, respectively) versus low social intensity conditions ($\bar{p} = -.163$, $\bar{p} = -.131$, and $\bar{p} = -.131$, respectively). The predicted pattern was also evidenced for job satisfaction and task performance, respectively, at high ($\bar{p} = .422$, $\bar{p} = .202$) versus low ($\bar{p} = .253$, $\bar{p} = .153$) levels of social intensity.

Discussion

Do coworkers “make the place” (Schneider, 1987, p. 437)? In what ways? Our main objectives were to develop an integrative framework of coworker influences, test its components through meta-analysis, and (in doing so) provide evidence of the uniqueness and import of coworkers’ influences in organizations. Clarifying these questions and answers can change—and potentially challenge—what we currently know about components of the workplace social environment.

First and foremost, our framework can improve theory development and design of impending empirical studies. For example, it suggests simultaneous relationships and, therefore, future joint examination between positive (support) and negative (antagonism) coworker predictors and outcomes. This more encompassing conceptualization of the predictor space can bridge current research focusing exclusively on the coworkers’ positive or negative actions (e.g., Dutton & Dukerich, 2006; Felps, Mitchell, & Byington, 2006). Sec-

ond, increased theoretical specification on how coworkers matter is provided by clarifying components of our framework. The ways that coworkers (e.g., content of coworker support, severity of coworker antagonism) or the task environments (i.e., social intensity) act to highlight or differentiate coworker effects are novel and result from the advantages of cumulating evidence from many studies.

Third, and in a finding that is new to the literature, the empirical evidence integrated into the framework shows that coworker actions predict perceptual, attitudinal, and behavior outcomes of their colleagues even when the influence of the direct leaders (on the same focal colleagues) is accounted for. This pattern of evidence finding can inform the design of new studies on the interplay of coworker and leaders potential relationships with the outcomes. Below, we provide more details on the meta-analytic findings and discuss how they speak to theories of lateral relationships at work.³

Implications for Coworker Theories

Direct links. As we hypothesized and as is suggested by converging theories (e.g., Caplan et al., 1975; Katz & Kahn, 1978), coworker support is related to focal employees’ role perceptions. One way that coworkers make the place is to serve as a potentially rich source of help and information, which is associated with a reduction in their colleagues’ role ambiguity, conflict, and overload. Coworker actions are likewise strongly linked to higher satisfaction and involvement in one’s job, and to a deeper commitment to one’s organization. Such results are consistent (a) with theoretical arguments that coworkers are an important, yet ne-

³ Our discussion mirrors the directionality of most of our formal hypotheses, connecting coworker support with individual outcomes. When necessary, because of asymmetric or nuanced configurations of findings, we also briefly comment on coworker antagonism.

glected, source of commitment (Reichers, 1985) and (b) with interventions aimed at improving attitudes through actions originating laterally (e.g., mentoring from coworkers; Raabe & Beehr, 2003).

For withdrawal outcomes, coworker behaviors can be cast as having both strong and weak associations. Effort reduction and turnover intentions, both self-reported in original studies, would seem to be tightly connected to coworker actions. Absenteeism, usually taken from another source, is only loosely so. Actual turnover also comes from a separate source of data but still has a more substantial connection with coworker behaviors. Thus, coworkers *can be* a potent instigator or mitigator of withdrawal. As tested in some of the primary studies, this could occur through a variety of mechanisms (e.g., working at a faster or slower pace, providing or withholding their own engagement in tasks, being present or absent, and choosing to stay or quit the organization themselves; Cox, 1999; Krackhardt & Porter, 1986). For effectiveness outcomes, coworker support is positively related to both performance and OCBs, and the pattern is maintained for the relationship between coworker antagonism and CWBs (with fairly robust results across data sources). Positive and negative reciprocity (Gouldner, 1960) and turn-taking (Kelley & Thibaut, 1978) are explanations consistent with these findings.

Intervening processes: Mediators and moderators. A particularly strong pattern of findings emerges when we examine whether the relationship between coworkers' positive and negative influences and their colleagues' performance is broad-based and direct versus narrow and indirect (fully mediated). Role perceptions (i.e., ambiguity, conflict) and work attitudes (job satisfaction, commitment) explain only part of the link between coworker behaviors and their colleagues' performance. That is, the data are consistent with the idea that coworkers affect behavioral outcomes directly. The exact mechanisms underlying these direct relationships remain open to and now command further exploration.

Complex yet systematic patterns are also present when we turn to an examination of moderators. In terms of the *valence* of coworker actions, general attitudes toward one's work and the organization appear to more strongly reflect coworker support than coworker antagonism. Our reasoning for this prediction was that positive forms of coworker behaviors are expected. As the perceptual backdrop or base fabric of ties that make up the organization, such positive associations are more likely to be attributed to the overall social environment (Green & Mitchell, 1979). On the other hand, when unexpectedly *negative* behaviors are delivered, or when ties are severed by coworkers, focal employees might make more personal attributions, directing their response to retaliatory or reciprocal processes that are more narrowly targeted at specific coworkers in the social environment. We believe this finding of response asymmetry is also unique in the literature, and it further illustrates one of the benefits of a meta-analytic approach. Such asymmetry does not appear in theoretical and empirical investigations of the effect of the leader or the organization on focal employees, although it is increasingly present in intrapersonal domains, in theories of affect and attitude development (Cacioppo et al., 1999), and of self-regulation (Skowronski & Carlston, 1989).

Further, differences in the valence of coworker actions indicate that antagonism overshadows support in terms of being associated with employee behaviors that have an interpersonal target. Specif-

ically, antagonism is more strongly linked to a passive response of reduced citizenship and an active response of heightened counterproductive behaviors directed (back) at coworkers (Duffy et al., 2006). Both of these results take on the veneer of revenge or reprisal, and such results would be predicted by tit-for-tat (Axelrod, 1984) relational strategies.

Moderators based on content, severity, and social intensity show, from a different angle, the benefits evidence obtained from cumulating a large number of studies. When coworker support is separated on the basis of its *content*, its instrumental side appears to be aimed at, and is a stronger predictor of, focal employee effectiveness than is affective support. It also appears to be returned more often in kind than affective support—manifesting itself as a higher frequency of OCB-Is. Such results are predicted by the need to maintain balance in interdependent relationships (Kelley & Thibaut, 1978) and by favor-doing explanations (Flynn, 2006). Alternatively, focal employee attitudes have a stronger relationship with affective rather than instrumental support, consistent with the developing of social resources aspect of the broaden-and-build model (e.g., Fredrickson, 1998).

In addition to connecting coworker antagonism to individual outcomes, we were also able to differentiate how these outcomes are modified on the basis of the *severity* of antagonism. Despite a smaller number of antagonism studies, which also speaks to a greater need in future coworker research, our cumulative results support severity as a moderator. Although both weak and strong forms of antagonism are associated with more detrimental levels of job satisfaction and CWBs, stronger versions (e.g., interpersonal conflict; Bruk-Lee & Spector, 2006) accentuate the outcomes more than weaker versions (e.g., neglect, exclusion; Duffy et al., 2002). These patterns, which are not captured in primary studies because they tend to examine each level in isolation, point to the need to integrate theories of negative coworker influences by using severity as a kind of "accelerant" of damaging social effects (Sutton, 2007).

Turning from the people who make the place to aspects of the place itself, we theorized that coworkers would be more influential in jobs and occupations with high intensity social requirements. Indeed, our results show that because of specific interpersonal components of particular tasks and positions (e.g., need to cooperate), coworkers matter more for their colleagues' roles, attitudes, withdrawal, and effectiveness in these settings than for jobs with reduced social intensity. This result and the others presented above have implications for the next decades of investigations on coworker influences, discussed next.

Implications for Research Paradigms

Extending and refining lateral relationships research. Adding to studies that have cumulated effects of *opportunities* to receive help from coworkers (e.g., Humphrey, Nahrgang, & Morgeson, 2007) and to other meta-analytic work focusing on health outcomes (e.g., burnout; Halbesleben, 2006), we begin to formalize an agenda and direction for bringing together heretofore separate streams of research on leader and coworker influences. Coworker behaviors are linked uniquely to each (perceptual, attitudinal, and behavioral) category of work outcomes examined in the present study, and they can be a primary contributor to focal employees' role perceptions, turnover, and performance. However, further

investigation using more complex models is necessary to capture how coworker support or antagonism matters.

In general, the studies we have summarized relate *either* positive or negative coworker actions to *either* prosocial (Deckop et al., 2003) or counterproductive outcomes (Robinson & O'Leary-Kelly, 1998). Yet, employees are likely to encounter *both* positive and negative behaviors originating from coworkers; broader models that include simultaneous—additive, synergistic, or neutralizing—effects of coworker support *and* antagonism can inform theory and related interventions. Further investigations would benefit from using the integrative framework provided and examining the entire range of coworker behaviors and individual outcomes. Our asymmetric results suggest unique correlations of these two valences of coworker actions for attitudes versus behaviors, for instance. It is yet to be determined whether the pattern holds for other work outcomes, such as role perceptions and withdrawal. More refined models can also examine whether these asymmetries based on valence are attenuated or enhanced as a function of the behavioral content (e.g., affective vs. instrumental), especially for coworker antagonism. From another direction, researchers can explore the existence and strength of social network ties between coworkers and the focal employee (Balkundi & Harrison, 2006). Changing to a within-persons focus, researchers can also examine how work outcomes are influenced by positive and negative behaviors originating from the *same* coworker.

Because of the focus of our study, our attention was directed toward coworker influences (support and antagonism *received* from others) and the resulting outcomes for the individual and the organization, and we did not examine the complex dynamics of receiving and *giving* resources. Giving is an important aspect, and studies (situated outside the workplace) have demonstrated that providing to others reduces givers' mortality rates (e.g., S. L. Brown, Nesse, Vinokur, & Smith, 2003). It is yet to be examined whether giving to coworkers can translate into similar positive outcomes for the individual providers in organizations. Future research can explore the asymmetries of giving and receiving, in the same way we have examined other asymmetries.

Creating synergies with other theoretical perspectives. Stepping outside the boundaries of lateral relationships, theoretical advances could be made by *simultaneously* examining influences emanating from coworkers, leaders, and the organization. Are the influences of all these social agents additive, interactive, or compensatory? Do they hold equally well across categories of outcomes? Research has started to uncover how supervisor and coworker behaviors are related to work outcomes across valences and domains (Duffy et al., 2006). Future work can integrate our findings with results from the organization treated as a whole entity. The various environmental configurations obtained by crossing positive and negative influences originating from one's organization, leader, and coworkers are, however, not investigated and are scarcely theorized upon.

Our results (especially those based on differential relationships) also have the potential to inform practical interventions. For example, if our results approximate the strength of causal effects, interventions directed at alleviating role ambiguity (perhaps the chief stressor on international assignments; Bhaskar-Shrinivas, Harrison, Shaffer, & Luk, 2005) might be geared toward coworkers ($\bar{\rho} = -.42$ and $\bar{\rho} = .39$ for support and antagonism, respectively) rather than toward leaders. Similarly, interventions aiming

at decreasing turnover via coworker influences might start with coworkers ($\bar{\rho} = -.17$ and $\bar{\rho} = .22$ for support and antagonism, respectively) rather than with leaders, which is an implication of embeddedness and unfolding theories. Turning to moderators, practitioners might likewise expect such coworker-based interventions to be more potent in those jobs in which the tasks have more demanding social requirements (e.g., multidisciplinary teams; Van der Vegt, Van de Vliert, & Oosterhof, 2003).

Limitations

Despite our attempt to be comprehensive and rigorous, our meta-analysis has several limitations. The lack of controlled experiments makes any statements about causal direction provisional, which is coupled with the fact that third variables may confound some of the relationships. Still, prior support for our hypotheses comes from experimental studies of underlying frameworks and theories in social psychology (e.g., negative asymmetry; Cacioppo, Gardenr, & Berntson, 1997) and organizational studies (e.g., reciprocation; Eisenberger, Lynch, Aselage, & Rohdieck, 2004). In addition, models with a reverse causal direction lack an underlying theory and would be logically inconsistent, especially for some of our moderators. Finally, the causal direction is much less likely to be reversed for some of our relationships, which were examined with primary studies in which the predictors and criteria were measured with a time lag (e.g., turnover studies). Future field research might more carefully track specific types of coworker actions using small samples or highly descriptive cases that are more sensitive to the time ordering of coworker influences and employee outcomes.

Reported results are robust to potential null effects, signified by large fail-safe k numbers (Rosenthal, 1979). Yet, another limitation of this meta-analysis is comparatively few investigations of the "dark side" of influences originating from coworkers—antagonism. It is studied much less often than coworker support (similarly, negative ties have seen only limited investigation in the social network literature; Labianca & Brass, 2006). This makes some of our comparisons across the valence of coworker actions more tentative. Similarly, although for most of our proposed moderators of coworker influences confidence intervals show no overlap and thus provide stronger case for differential inferences, caution is warranted when interpreting some of these tests because of a greater possibility of second-order sampling error (Hunter & Schmidt, 2004). However, we hope our reporting of its strong relationship with many individual outcomes will spur more intense study of antagonism's severity and distribution over persons and times (e.g., Mitra, Duffy, & Bowler, 2008). Future experimental studies would be particularly welcome, perhaps uncovering intervening factors, such as the attributions we describe above, for the seemingly different targets of support and antagonism effects.

Finally, as in prior meta-analyses, some of the coworker and outcome constructs were measured via a single person's perspective (usually the focal employee's) and are potentially subject to inflation from common method variance. When possible, we showed the same pattern of linkages when different-source correlations could be compared. Still, if study participants could be identified by unit, it would seem fairly straightforward in future research to use split (within-unit) or self-other designs in which independent and dependent variables came from different sources

(M. E. Brown, Treviño, & Harrison, 2005; Ostroff, Kinicki, & Clark, 2002).

Conclusion

For many decades, theorists have emphasized the importance of elements of the social context at work in general and of coworkers in particular. Yet, coworkers have been given comparatively less systematic attention using integrative frameworks, and their influences on focal employees have not been organized and summarized. We attempted to do so by characterizing the influences brought by coworkers as *support* and *antagonism* and by assembling a framework to examine these relationships. We tested the proposed relationships using many thousands of observations from over 160 primary studies. Results are compelling. Coworkers matter—making the place—for a broad pattern of employee outcomes. Furthermore, they matter in asymmetric ways, depending on whether they are Sartre's (1989) devils or Butler's (1912/1951) angels. We hope these cumulated, integrated, but complex findings stimulate research that investigates lateral influences in more detail, especially in combination with other parties who compose the social environment at work.

References

References marked with an asterisk indicate studies included in the meta-analysis.

- *Abdel-Halim, A. A. (1982). Social support and managerial affective responses to job stress. *Journal of Occupational Behavior*, 3, 281–295.
- *Abraham, R. (1999). The impact of emotional dissonance on organizational commitment and intention to turnover. *Journal of Psychology*, 133, 441–455.
- *AbuAlRub, R. F. (2004). Job stress, job performance, and social support among hospital nurses. *Journal of Nursing Scholarship*, 36, 73–78.
- *Acker, G. M. (2004). The effect of organizational conditions (role conflict, role ambiguity, opportunities for professional development, and social support) on job satisfaction and intention to leave among social workers in mental health care. *Community Mental Health Journal*, 40, 65–73.
- Andersson, L., & Pearson, C. (1999). Tit-for-tat? The spiraling effect of incivility in the workplace. *Academy of Management Review*, 24, 452–471.
- *Aquino, K., & Douglas, S. (2003). Identity threat and antisocial behavior in organizations: The moderating effects of individual differences, aggressive modeling, and hierarchical status. *Organizational Behavior and Human Decision Processes*, 90, 195–208.
- *Armstrong-Stassen, M., Cameron, S. J., & Horsburgh, M. E. (2001). Downsizing-initiated job transfer of hospital nurses: How do the job transferees fare? *Journal of Health and Human Services Administration*, 23, 470–489.
- Ashforth, B. E., & Kreiner, G. E. (1999). "How can you do it?": Dirty work and the challenge of constructing a positive identity. *Academy of Management Review*, 24, 413–434.
- Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14, 20–39.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Bales, R. F. (1950). *Interaction process analysis: A method for the study of small groups*. Reading, MA: Addison-Wesley.
- Balkundi, P., & Harrison, D. A. (2006). Ties, leaders, and time in teams: Strong inference about network structure effects on team viability and performance. *Academy of Management Journal*, 49, 49–68.
- *Bartlett, K. R. (2001). The relationship between training and organizational commitment: A study in the health care field. *Human Resource Development Quarterly*, 12, 335–352.
- *Baruch-Feldman, C., Brondolo, E., Ben-Dayan, D., & Schwartz, J. (2002). Sources of social support and burnout, job satisfaction, and productivity. *Journal of Occupational Health Psychology*, 7, 84–93.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 4, 323–370.
- *Bedeian, A. G., Mossholder, K. W., & Armenakis, A. A. (1983). Role perception–outcome relationships: Moderating effects of situational variables. *Human Relations*, 36, 167–183.
- *Beehr, T. A. (1986). Social support, autonomy, and hierarchical level as moderators of the role characteristics–outcome relationship. *Journal of Occupational Behavior*, 7, 207–214.
- *Beehr, T. A., Jex, S. M., Stacy, B. A., & Murray, M. A. (2000). Work stressors and coworker support as predictors of individual strain and job performance. *Journal of Organizational Behavior*, 21, 391–405.
- Bennett, R. J., & Robinson, S. L. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology*, 85, 349–360.
- Bhaskar-Shrinivas, P., Harrison, D. A., Shaffer, M. A., & Luk, D. M. (2005). Input-based and time-based models of international adjustment: Meta-analytic evidence and theoretical extensions. *Academy of Management Journal*, 48, 257–281.
- *Bishop, J. W., Scott, K. D., & Burroughs, S. M. (2000). Support, commitment, and employee outcomes in a team environment. *Journal of Management*, 2, 1113–1132.
- *Blau, G. (1981). An empirical-investigation of job stress, social support, service length, and job strain. *Organizational Behavior and Human Performance*, 27, 279–330.
- *Blau, G., & Andersson, L. (2005). Testing a measure of instigated workplace incivility. *Journal of Occupational and Organizational Psychology*, 78, 595–614.
- Blau, P. (1964). *Exchange and power in social life*. New York: Wiley.
- *Bommer, W. H., Miles, E. W., & Grover, S. L. (2003). Does one good turn deserve another? Coworker influences on employee citizenship. *Journal of Organizational Behavior*, 24, 181–196.
- *Bowling, N. A., Beehr, T. A., Johnson, A. L., Semmer, N. K., Hendricks, E. A., & Webster, H. A. (2004). Explaining potential antecedents of workplace social support: Reciprocity or attractiveness? *Journal of Occupational Health Psychology*, 9, 339–350.
- *Boyar, S. L. (2002). *A model of work and family conflict: The impact of work/family centrality and family role configuration on the demand–conflict relationship*. Unpublished doctoral dissertation, Mississippi State University, Starkville.
- *Bradley, J. R., & Cartwright, S. (2002). Social support, job stress, health, and job satisfaction among nurses in the United Kingdom. *International Journal of Stress Management*, 9, 163–182.
- *Brough, P., & Frame, R. (2004). Predicting police job satisfaction and turnover intentions: The role of social support and police organisational variables. *New Zealand Journal of Psychology*, 33, 8–16.
- Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes*, 97, 117–134.
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science*, 14, 320–327.
- Brown, S. P. (1996). A meta-analysis of job involvement and its correlates. *Psychological Bulletin*, 120, 235–255.
- *Bruk-Lee, V., & Spector, P. E. (2006). The social stressors–counterproductive work behaviors link: Are conflicts with supervisors and coworkers the same? *Journal of Occupational Health Psychology*, 11, 145–156.
- Butler, S. (1951). *Samuel Butler's notebooks*. New York: E. P. Dutton & Company. (Original work published 1912)

- *Byrne, Z. S. (2001). *Effects of perceptions of organizational justice, identification, and support on outcomes within work teams*. Unpublished doctoral dissertation, Colorado State University, Fort Collins.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychology Review*, 1, 3–25.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology*, 76, 839–855.
- Caplan, R. D., Cobb, S., French, J. R. P., Jr., Harrison, R. V., & Pinneau, S. R., Jr. (1975). *Job demands and worker health: Main effects and occupational differences* (U.S. Department of Health, Education, and Welfare HEW Publication No. 75–160). Ann Arbor: Institute for Social Research, University of Michigan.
- Cascio, W. (1998). *Applied psychology in human resources management*. Englewood Cliffs, NJ: Prentice-Hall.
- *Chay, Y. W. (1993). Social support, individual differences, and well-being. *Journal of Occupational and Organizational Psychology*, 66, 285–302.
- *Chiaburu, D. S., & Marinova, S. V. (2005). What predicts skill transfer? Exploratory study of goal orientation, training self-efficacy, and organizational supports. *International Journal of Training and Development*, 9, 110–123.
- *Clegg, C., Wall, T., & Kemp, N. (1987). Women on assembly line: A comparison of main and interactive explanations of job satisfaction. *Journal of Occupational Psychology*, 60, 273–287.
- Cobb, S. (1979). Social support and health through the life course. In M. W. Riley (Ed.), *Aging from birth to death: Interdisciplinary perspective* (pp. 93–106). Boulder, CO: Westview Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357.
- Coleman, V. I., & Borman, W. C. (2000). Investigating the underlying structure of the citizenship performance domain. *Human Resource Management Review*, 10, 25–44.
- Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85, 678–707.
- Cox, S. (1999). Group communication and employee turnover: How co-workers encourage peers to voluntarily exit. *Southern Communication Journal*, 64, 181–192.
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31, 874–900.
- *Crossley, C. D. (2005). *Victim's reactions to social undermining*. Unpublished doctoral dissertation, Bowling Green University, OH.
- *Cummins, R. C. (1990). Job stress and the buffering effect of supervisory support. *Group & Organization Studies*, 15, 92–104.
- Cutrona, C. E., & Russell, D. W. (1987). The provision of social relationships and adaptation to stress. *Advances in Personal Relationships*, 1, 37–67.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis, MN: University of Minnesota Press.
- *Deckop, J. R., Cirka, C. C., & Andersson, L. M. (2003). Doing unto others: The reciprocity of helping behavior in organizations. *Journal of Business Ethics*, 47, 101–113.
- de Jong, A., & de Ruyter (2004). Adaptive versus proactive behavior in service recovery: The role of self-managing teams. *Decision Sciences*, 35, 457–491.
- Dierdorff, E. C., & Morgeson, F. P. (2007). Consensus in work role requirements: The influence of discrete occupational context on role expectations. *Journal of Applied Psychology*, 92, 1228–1341.
- *Donovan, M. A., Drasgow, F., & Munson, L. J. (1998). The perceptions of fair interpersonal treatment scale: Development and validation of a measure of interpersonal treatment in the workplace. *Journal of Applied Psychology*, 83, 683–692.
- *Duffy, M. K., Ganster, D. C., & Pagon, M. (2002). Social undermining in the workplace. *Academy of Management Journal*, 45, 331–351.
- *Duffy, M. K., Ganster, D. C., Shaw, J. D., Johnson, J. L., & Pagon, M. (2006). The social context of undermining behavior at work. *Organizational Behavior and Human Decision Processes*, 101, 105–121.
- *Duffy, M. K., Shaw, J. D., & Stark, E. M. (2000). Performance and satisfaction in conflicted interdependent groups: When and how does self-esteem make a difference? *Academy of Management Journal*, 43, 772–782.
- Dutton, J. E., & Dukerich, J. M. (2006). The relational foundation of research: An underappreciated dimension of interesting research. *Academy of Management Journal*, 49, 21–26.
- Eisenberger, R., Lynch, P., Aselage, J., & Rohdieck, S. (2004). Who takes the most revenge? Individual differences in negative reciprocity norm endorsement. *Personality and Social Psychology Bulletin*, 30, 787–799.
- *Ensher, E. A., Grant-Vallone, E. J., & Donaldson, S. I. (2001). Effects of perceived discrimination on job satisfaction, organizational commitment, organizational citizenship behavior, and grievances. *Human Resource Development Quarterly*, 12, 53–72.
- *Ensher, E. A., Thomas, C., & Murphy, S. E. (2001). Comparison of traditional, step-ahead, and peer mentoring on protégés' support, satisfaction, and perceptions of career success: A social exchange perspective. *Journal of Business and Psychology*, 15, 419–438.
- *Ernst, M. E., Messmer, P. R., Franco, M., & Gonzalez, J. L. (2004). Nurses' job satisfaction, stress, and recognition in a pediatric setting. *Pediatric Nursing*, 30, 219–231.
- European Foundation for the Improvement of Living and Working Conditions. (2007). *Teamwork and high performance work organization*. Loughlinstown, Ireland: Eurofound Report.
- *Facteau, J. D., Dobbins, G. H., Russell, J. E. A., Ladd, R., & Kudisch, J. D. (1995). The influence of general perceptions of the training environment on pretraining motivation and perceived training transfer. *Journal of Management*, 21, 1–25.
- *Fairbrother, K., & Warn, J. (2003). Workplace dimensions, stress, and job satisfaction. *Journal of Managerial Psychology*, 18, 8–21.
- Fairlie, R. W. (2004, December). Self-employed business ownership rates in the United States: 1979–2003. *Small Business Administration* [Research Summary 243].
- Felps, W., Mitchell, T. R., & Byington, E. (2006). How, when, and why bad apples spoil the barrel: Negative group members and dysfunctional groups. *Research in Organizational Behavior*, 27, 181–230.
- Ferris, G. R., & Mitchell, T. R. (1987). The components of social influence and their importance for human resources research. In K. M. Rowland & G. R. Ferris (Eds.), *Research in personnel and human resources management* (Vol. 5, pp. 103–128). Greenwich, CT: JAI Press.
- Fiedler, F. E. (1996). Research on leadership selection and training: One view of the future. *Administrative Science Quarterly*, 41, 241–250.
- *Fisher, C. D. (1985). Social support and adjustment to work: A longitudinal study. *Journal of Management*, 11, 39–53.
- Fiske, A. P. (1992). Four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review*, 99, 689–723.
- Flynn, F. (2006). How much is it worth to you? Subjective evaluations of help in organizations. *Research in Organizational Behavior*, 27, 133–174.
- Foa, U. G., & Foa, E. B. (1976). Resource theory of social exchange. In J. W. Thibaut, J. T. Spence, & R. C. Carson (Eds.), *Contemporary topics in social psychology* (pp. 99–131). Morristown, NJ: General Learning Press.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319.
- *Frone, M. R. (1998). Predictors of work injuries among employed adolescents. *Journal of Applied Psychology*, 83, 565–576.

- *Frone, M. R. (2000). Interpersonal conflict at work and psychological outcomes: Testing a model among young workers. *Journal of Occupational Health Psychology, 5*, 246–255.
- *Frone, M. R., Yardley, J. K., & Markel, K. S. (1997). Developing and testing an integrative model of the work–family interface. *Journal of Vocational Behavior, 50*, 145–167.
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology, 92*, 1524–1541.
- *Ganster, D. C., Fusilier, M. R., & Mayes, B. T. (1986). Role of social support in the experience of stress at work. *Journal of Applied Psychology, 71*, 102–110.
- *Gelsema, T. I., Van der Doef, M., Maes, S., Akerboom, S., & Verhoeven, C. (2005). Job stress in the nursing profession: The influence of organizational and environmental conditions and job characteristics. *International Journal of Stress Management, 12*, 222–240.
- 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.
- Gibson, D. E. (2003). Developing the professional self-concept: Role model construals in early, middle, and late career stages. *Organization Science, 14*, 591–610.
- *Glomb, T. M., & Liao, H. (2003). Interpersonal aggression in work groups: Social influence, reciprocal, and individual effects. *Academy of Management Journal, 46*, 486–496.
- Gordon, J. (1992). Work teams: How far have they come? *Training, 29*, 59–65.
- Gouldner, A. (1960). The norm of reciprocity. *American Sociological Review, 25*, 161–178.
- *Graf, I. (1999). *Perceived social support versus social embeddedness: Effects of employee and organizational outcomes*. Unpublished doctoral dissertation, University of Illinois, Chicago.
- Green, S. G., & Mitchell, T. R. (1979). Attributional processes of leaders in leader–member interactions. *Organizational Behavior and Human Performance, 23*, 429–458.
- Griffith, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*, 463–488.
- Gruys, M. L., & Sackett, P. R. (2003). Investigating the dimensionality of counterproductive work behavior. *International Journal of Selection and Assessment, 11*, 30–41.
- Hackman, J. R. (1992). Group influences in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 3, pp. 199–267). Palo Alto, CA: Consulting Psychologists Press.
- *Hain, C. A. (2005). *Coworker relationships: Using a new measure to predict health related outcomes*. Unpublished master's thesis, Saint Mary's University, Halifax, Nova Scotia, Canada.
- Halbesleben, J. R. B. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology, 91*, 1134–1145.
- *Harris, J. I., Moritzen, S. K., Robitschek, C., Imhoff, A., & Lynch, J. L. A. (2001). The comparative contributions of congruence and social support in career outcomes. *Career Development Quarterly, 49*, 314–323.
- Harrison, D. A. (1995). Volunteer motivation and attendance decisions: Competitive theory testing in multiple samples from a homeless shelter. *Journal of Applied Psychology, 80*, 371–385.
- Harrison, D. A. (2002). Meaning and measurement of work role withdrawal: Current controversies and future fallout under changing technology. In M. Koslowsky & M. Krausz (Eds.), *Voluntary employee withdrawal and inattentance: A current perspective* (pp. 95–132). London: Plenum Publishing.
- Harrison, D. A., Johns, G., & Martocchio, J. J. (2000). Changes in technology, teamwork, and diversity: New directions for a new century of absenteeism research. In G. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 18, pp. 43–91). Greenwich, CT: JAI Press.
- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal, 49*, 305–325.
- *Harvey, S., Blouin, C., & Stout, D. (2006). Proactive personality as a moderator of outcomes for young workers experiencing conflict at work. *Personality and Individual Differences, 40*, 1063–1074.
- *Hayes, B. E., Perander, J., Smecko, T., & Trask, J. (1998). Measuring perceptions of workplace safety: Development and validation of the work safety scale. *Journal of Safety Research, 29*, 145–161.
- *Haynes, C. E., Wall, T. D., Bolden, R. I., Stride, C., & Rick, J. E. (1999). Measures of perceived work characteristics for health services research: Test of a measurement model and normative data. *British Journal of Health Psychology, 4*, 257–275.
- *Heaney, C. A., Israel, B. A., Schurman, S. J., Baker, E. A., House, J. S., & Hugentobler, M. (1993). Industrial-relations, worksite stress reduction, and employee well-being—A participatory action research investigation. *Journal of Organizational Behavior, 14*, 495–510.
- *Helford, M. C. (1995). *Person–climate fit and organizational commitment*. Unpublished doctoral dissertation, Loyola University, Chicago.
- Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology, 6*, 35–44.
- Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*, 1332–1356.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings*. Thousand Oaks, CA: Sage.
- Ilgel, D. R., & Hollenbeck, J. R. (1991). The structure of work: Job design and roles. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 2, pp. 165–207). Palo Alto, CA: Consulting Psychologists Press.
- Ilies, R., Nahrgang, J. D., & Morgeson, F. P. (2007). Leader–member exchange and citizenship behaviors: A meta-analysis. *Journal of Applied Psychology, 92*, 269–277.
- *Iverson, R. D., Olekalns, M., & Erwin, P. J. (1998). Affectivity, organizational stressors, and absenteeism: A causal model of burnout and its consequences. *Journal of Vocational Behavior, 52*, 1–23.
- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes, 36*, 16–78.
- *Jackson, S. E., Turner, J. A., & Brief, A. P. (1987). Correlates of burnout among public-service lawyers. *Journal of Occupational Behaviour, 8*, 339–349.
- *Jones, J. R., & Schaubroeck, J. (2004). Mediators of the relationship between race and organizational citizenship behavior. *Journal of Managerial Issues, 16*, 505–527.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology, 89*, 755–768.
- Judge, T. A., Piccolo, R. F., & Ilies, R. (2004). The forgotten ones? The validity of consideration and initiating structure in leadership research. *Journal of Applied Psychology, 89*, 36–51.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127*, 376–407.
- Kahn, R. L. (1979). Aging and social support. In M. W. Riley (Ed.), *Aging from birth to death: Interdisciplinary perspectives* (pp. 77–91). Boulder, CO: Westview Press.

- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and role ambiguity*. New York: Wiley.
- *Karasek, R. A., Triantis, K. P., & Chaudhry, S. S. (1982). Co-worker and supervisor support as moderators of association between task characteristics and mental strain. *Journal of Occupational Behaviour*, 3, 181–200.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.
- Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist*, 28, 107–128.
- Kelley, H. H., & Thibaut, J. (1978). *Interpersonal relations: A theory of interdependence*. New York: Wiley.
- Kelman, H. C. (1961). Processes of opinion change. *Public Opinion Quarterly*, 25, 57–78.
- Kidwell, R. E., Jr., & Bennett, N. (1993). Employee propensity to withhold effort: A conceptual model to intersect three avenues of research. *Academy of Management Review*, 18, 429–456.
- *Kidwell, R. E., Jr., Mossholder, K. W., & Bennett, N. (1997). Cohesiveness and organizational citizenship behavior: A multilevel analysis using work groups and individuals. *Journal of Management*, 23, 775–793.
- *Kidwell, R. E., Jr., & Robie, C. (2003). Withholding effort in organizations: Toward development and validation of a measure. *Journal of Business and Psychology*, 17, 537–561.
- *Klein, H. J., Fan, J., & Preacher, K. J. (2006). The effects of early socialization experiences on content mastery and outcomes: A mediational approach. *Journal of Vocational Behavior*, 68, 96–115.
- *Kogler Hill, S. E., Bahniuk, M. H., & Dobos, J. (1989). The impact of mentoring and collegial support on faculty success: An analysis of support behavior, information adequacy, and communication apprehension. *Communication Education*, 38, 15–33.
- *Koster, F., & Sanders, K. (2006). Organisational citizens or reciprocal relationships? An empirical comparison. *Personnel Review*, 35, 519–537.
- Krackhardt, D., & Porter, L. W. (1986). The snowball effect: Turnover embedded in communication networks. *Journal of Applied Psychology*, 71, 50–55.
- Kram, K. E., & Isabella, L. A. (1985). Mentoring alternatives: The role of peer relationships in career development. *Academy of Management Journal*, 28, 110–132.
- *Kramer, M. W. (1996). A longitudinal study of peer communication during job transfers—The impact of frequency, quality, and network multiplexity on adjustment. *Human Communication Research*, 23, 59–86.
- *Kramer, M. W., Callister, R. R., & Turban, D. B. (1995). Information-giving and information-receiving during job transitions. *Western Journal of Communication*, 59, 151–170.
- *Krausz, M., Yaakobovitz, N., Bizman, A., & Caspi, T. (1999). Evaluation of coworker turnover outcomes and its impact on the intention to leave of the remaining employees. *Journal of Business and Psychology*, 14, 95–107.
- Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social network in organizations. *Academy of Management Review*, 31, 596–614.
- *Ladd, D., & Henry, R. A. (2000). Helping coworkers and helping the organization: The role of support perceptions, exchange ideology, and conscientiousness. *Journal of Applied Social Psychology*, 30, 2028–2049.
- *Larocco, J. M., House, J. S., & French, J. R. P. (1980). Social support, occupational stress, and health. *Journal of Health and Social Behavior*, 21, 202–218.
- *Larocco, J. M., & Jones, A. P. (1978). Co-worker and leader support as moderators of stress-strain relationships in work situations. *Journal of Applied Psychology*, 63, 629–634.
- Lavelle, J. J., Rupp, D. E., & Brockner, J. (2007). Taking a multifoci approach to the study of justice, social exchange, and citizenship behavior: The target similarity model. *Journal of Management*, 33, 841–866.
- *LeBlanc, M. M., & Kelloway, E. K. (2002). Predictors and outcomes of workplace violence and aggression. *Journal of Applied Psychology*, 87, 444–453.
- *Lee, P. C. B. (2004). Social support and leaving intention among computer professionals. *Information & Management*, 41, 323–334.
- Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary employee turnover. *Academy of Management Review*, 19, 51–89.
- *Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior*, 9, 297–308.
- LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology*, 87, 52–65.
- *Liao, H. (2002). *A cross-level analysis of organizational citizenship behaviors in work groups*. Unpublished doctoral dissertation, University of Minnesota, Twin Cities.
- *Liao, H., Joshi, A., & Chuang, A. (2004). Sticking out like a sore thumb: Employee dissimilarity and deviance at work. *Personnel Psychology*, 57, 969–1000.
- *Liden, R. C., Wayne, S. J., Jaworski, R. A., & Bennett, N. (2004). Social loafing: A field investigation. *Journal of Management*, 30, 285–304.
- *Limbirt, C. (2004). Psychological well-being and job satisfaction amongst military personnel on unaccompanied tours: The impact of perceived social support and coping strategies. *Military Psychology*, 16, 37–51.
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- *Llorens, S., Bakker, A. B., Schaufeli, W. B., & Salanova, M. (2006). Testing the robustness of the job demands-resources model. *International Journal of Stress Management*, 13, 378–391.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1294–1349). Chicago: Rand McNally.
- Lodahl, T. M., & Kejner, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology*, 49, 24–33.
- *Love, M. S. (2001). *The case for the work group: The work group context as an antecedent of organizational citizenship behavior*. Unpublished doctoral dissertation, University of Missouri, Columbia.
- *Lu, L. (1999). Work motivation, job stress, and employees' well being. *Journal of Applied Management Studies*, 8, 61–72.
- *Mansell, A., Brough, P., & Coles, K. (2006). Stable predictors of job satisfaction, psychological strain, and employee retention: A longitudinal evaluation in the New Zealand Customs Service. *International Journal of Stress Management*, 13, 84–107.
- *Marshall, G. W., Michaels, C. E., & Mulki, J. P. (2007). Workplace isolation: Exploring the construct and its measurement. *Psychology & Marketing*, 24, 195–223.
- Mathieu, J. E., & Kohler, S. S. (1990). A cross-level examination of group absence influences on individual absence. *Journal of Applied Psychology*, 75, 217–220.
- Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, 108, 171–194.
- *McCalister, K. T., Dolbier, C. L., Webster, J. W., Mallon, M. W., & Steinhardt, M. A. (2006). Hardiness and support at work as predictors of job stress and job satisfaction. *American Journal of Health Promotion*, 20, 183–191.
- *McCann, B. S., Russo, J., & Benjamin, G. A. H. (1997). Hostility, social support, and perceptions of work. *Journal of Occupational & Organizational Health Psychology*, 2, 175–185.
- *McElroy, J. C., Morrow, P. C., & Mullen, E. J. (1996). Intraorganizational

- mobility and work related attitudes. *Journal of Organizational Behavior*, 17, 363–375.
- *McLaney, M. A., & Hurrell, J. (1988). Control, stress, and job satisfaction in Canadian nurses. *Work & Stress*, 2, 217–224.
- Meyer, J. P., & Allen, N. J. (1984). Testing the “side-bet theory” of organizational commitment: Some methodological considerations. *Journal of Applied Psychology*, 69, 372–378.
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, 61, 20–52.
- *Miller, K. I. (1990). An integrated model of communication. *Communication Research*, 17, 300–326.
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablynski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44, 1102–1121.
- Mitra, A., Duffy, M. K., & Bowler, W. M. (2008). *Consequences of social undermining and social support: A meta-analysis*. Paper presented at the Annual Conference of the Society for Industrial & Organizational Psychology (SIOP), San Francisco, CA.
- *Montgomery, A. J., Peeters, M. C. W., Schaufeli, W. B., & Den Ouden, D. (2003). Work–home interference among newspaper managers: Its relationship with burnout and engagement. *Anxiety Stress and Coping*, 16, 195–211.
- *Mor Barak, M. E., Levin, A., Nissly, J. A., & Lane, C. J. (2006). Why do they leave? Modeling turnover intentions from child welfare workers’ perceptions of their organizational climate. *Children and Youth Services Review*, 28, 548–577.
- Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, 91, 1321–1339.
- Morrison, E. W. (1993). Newcomer information seeking: Exploring types, modes, sources, and outcomes. *Academy of Management Journal*, 36, 557–589.
- *Mossholder, K. W., Settoon, R. P., & Henagan, S. C. (2005). A relational perspective on turnover: Examining structural, attitudinal, and behavioral predictors. *Academy of Management Journal*, 48, 607–618.
- Mumford, M. D., & Peterson, N. G. (1999). The O*NET content model: Structural considerations in designing jobs. In N. G. Peterson, M. D. Mumford, W. C. Borman, P. R. Jeanneret, & E. A. Fleishman (Eds.), *An occupational information system for the 21st century: The development of O*NET* (pp. 21–30). Washington, DC: American Psychological Association.
- *Nakata, A., Haratani, T., Takahashi, M., Kawakami, N., Arito, H., Kobayashi, F., & Araki, S. (2004). Job stress, social support, and prevalence of insomnia in a population of Japanese daytime workers. *Social Science & Medicine*, 59, 1719–1730.
- *Newman, D. A. (2004). *Is job (dis)satisfaction contagious? Simultaneous effects of social networks, task characteristics, and disposition*. Unpublished doctoral dissertation, Pennsylvania State University, University Park.
- Nicholson, N., & Johns, G. (1985). The absence culture and the psychological contract: Who’s in control of absence? *Academy of Management Review*, 10, 397–407.
- *Nielsen, S. K., Nielsen, T. M., & Sundstrom, E. (2007, April 27–29). *A multi-source model of perceived organizational support and performance*. Paper presented at the 22nd Annual Conference of the Society for Industrial and Organizational Psychology (SIOP), New York.
- Nugent, P. D., & Abolafia, M. Y. (2006). The creation of trust through interaction and exchange: The role of consideration in organizations. *Group & Organization Management*, 31, 628–650.
- Organ, D. W., Podsakoff, P. M., & MacKenzie, S. B. (2006). *Organizational citizenship behavior: Its nature, antecedents, and consequences*. Thousand Oaks, CA: Sage.
- *Orpen, C. (1982). The effect of social support on reactions to role ambiguity and conflict: A study among White and Black clerks in South Africa. *Journal of Cross-Cultural Psychology*, 13, 375–384.
- Ostroff, C., Kinicki, A. J., & Clark, M. (2002). Substantive and operational issues of response bias across levels of analysis: An example of climate–satisfaction relationships. *Journal of Applied Psychology*, 87, 355–368.
- *Park, K.-O. (2002). *The effects of social support at work on job demands, job control, depression, job performance, and absenteeism*. Unpublished doctoral dissertation, University of Georgia, Athens.
- *Parkes, K. R., Mendham, C. A., & Vonrabenau, C. (1994). Social support and the demand–discretion model of job stress: Tests of additive and interactive effects in two samples. *Journal of Vocational Behavior*, 44, 91–113.
- *Pearce, J. L., Branyiczki, I., & Bigley, G. A. (2000). Insufficient bureaucracy: Trust and commitment in particularistic organizations. *Organization Science*, 11, 148–162.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., Fleishman, E. A., Levin, K. Y., et al. (2001). Understanding work using the Occupational Information Network (O*NET): Implications for practice and research. *Personnel Psychology*, 54, 451–492.
- *Pettit, J. D., Goris, J. R., & Vaught, B. C. (1997). An examination of organizational communication as a moderator of the relationship between job performance and job satisfaction. *Journal of Business Communication*, 34, 81–98.
- *Pincus, J. D. (1986). Communication satisfaction, job-satisfaction, and job-performance. *Human Communication Research*, 12, 395–419.
- Podsakoff, P. M., Bommer, W. H., Podsakoff, N. P., & MacKenzie, S. B. (2006). Relationships between leader reward and punishment behavior and subordinate attitudes, perceptions, and behaviors: A meta-analytic review of existing and new research. *Organizational Behavior and Human Decision Processes*, 99, 113–142.
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bacharach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26, 513–563.
- Pollock, T. G., Whitbred, R. C., & Contractor, N. (2000). Social information processing and job characteristics: A simultaneous test of two theories with implications for job satisfaction. *Human Communication Research*, 26, 292–330.
- *Raabe, B., & Beehr, T. A. (2003). Formal mentoring versus supervisor and coworker relationships: Differences in perceptions and impact. *Journal of Organizational Behavior*, 24, 271–293.
- *Ray, E., B., & Miller, K. I. (1991). The influence of communication structure and social support on job stress and burnout. *Management Communication Quarterly*, 4, 506–527.
- *Redman, T., & Snape, E. (2006). The consequences of perceived age discrimination amongst older police officers: Is social support a buffer? *British Journal of Management*, 17, 167–175.
- Reichers, A. E. (1985). A review and reconceptualization of organizational commitment. *Academy of Management Review*, 10, 465–476.
- Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly*, 15, 150–163.
- *Robinson, S. L., & O’Leary-Kelly, A. M. (1998). Monkey see, monkey do: The influence of work groups on the antisocial behavior of employees. *Academy of Management Journal*, 41, 658–672.
- *Roe, R. A., Zinovieva, I. L., Dienes, E., & Ten Horn, L. A. (2000). A comparison of work motivation in Bulgaria, Hungary, and the Netherlands: Test of a model. *Applied Psychology: An International Review*, 49, 658–687.
- Rosenthal, R. (1979). The “file drawer problem” and tolerance for null results. *Psychological Bulletin*, 86, 638–641.

- *Sargent, L. D., & Terry, D. J. (2000). The moderating role of social support in Karasek's job strain model. *Work & Stress, 14*, 245–261.
- Sartre, J.-P. (1944). *Huis Clos* [No exit and three other plays]. New York: Vintage International.
- Sartre, J.-P. (1989). *No exit and other plays* (K. Black, Trans.). New York: Vintage Books.
- Schaefer, C., Coyne, J. C., & Lazarus, R. S. (1981). The health-related functions of social support. *Journal of Behavioral Medicine, 4*, 381–406.
- *Schaubroeck, J. (1998). Facilitating and inhibiting effects of job control and social support on stress outcomes and role behavior: A contingency model. *Journal of Organizational Behavior, 19*, 167–195.
- *Schmieder, R. A., & Smith, C. A. (1999). Moderating effects of social support in shiftworking and non-shiftworking nurses. *Work & Stress, 10*, 128–140.
- Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437–453.
- *Schonfeld, I. S. (2001). Stress in 1st-year women teachers: The context of social support and coping. *Genetic Social and General Psychology Monographs, 127*, 133–168.
- Schwarzer, R., & Leppin, A. (1989). Social support and health: A meta-analysis. *Psychology and Health, 3*, 1–15.
- Seers, A. (1989). Team-member exchange quality: A new construct for role-making research. *Organizational Behavior and Human Decision Processes, 43*, 118–135.
- *Seers, A., McGee, G. W., Serey, T. T., & Graen, G. B. (1983). The interaction of job stress and social support—A strong inference investigation. *Academy of Management Journal, 26*, 273–284.
- *Self, D. R., Holt, D. T., & Schaninger, W. S. (2005). Work-group and organizational support: A test of distinct dimensions. *Journal of Occupational and Organizational Psychology, 78*, 133–140.
- *Shaffer, M. A. (1994). *Expatriate turnover: An investigation of the decision process and an analysis of the impact and nature of spouse adjustment*. Unpublished doctoral dissertation, University of Texas at Arlington.
- *Shaffer, M. A., Harrison, D. A., & Gilley, K. M. (1999). Dimensions, determinants, and differences in the expatriate adjustment process. *Journal of International Business Studies, 30*, 557–581.
- *Sherony, K. M., & Green, S. G. (2002). Coworker exchange: Relationships between coworkers, leader-member exchange, and work attitudes. *Journal of Applied Psychology, 87*, 542–548.
- *Sias, P. M. (2005). Workplace relationship quality and employee information experiences. *Communication Studies, 56*, 375–395.
- *Singh, A. K., Jayaratne, S., Siefert, K., & Chess, W. A. (1995). Emotional support and social undermining as predictors of well-being. *Indian Journal of Social Work, 56*, 349–359.
- Skowronski, J. J., & Carlston, D. E. (1989). Negativity and extremity biases in impression formation: A review of explanations. *Psychological Bulletin, 105*, 131–142.
- *Steinhardt, M. A., Dolbier, C. L., Gottlieb, N. H., & McCalister, K. T. (2003). The relationship between hardiness, supervisor support, group cohesion, and job stress as predictors of job satisfaction. *American Journal of Health Promotion, 17*, 382–389.
- *Stetz, T. A., Stetz, M. C., & Bliese, P. D. (2006). The importance of self-efficacy in the moderating effects of social support on stressor-strain relationships. *Work & Stress, 20*, 49–59.
- *Susskind, A. M., Kacmar, M. K., & Borchgrevink, C. P. (2007). How organizational standards and coworker support improved restaurant service. *Cornell Hotel and Restaurant Administration Quarterly, 48*, 370–379.
- Sutton, R. I. (2007). *The no asshole rule: Building a civilized workplace and surviving one that isn't*. New York: Grand Central Publishing.
- *Taormina, R. J., & Bauer, T. J. (2000). Organizational socialization in two cultures: Results from the United States and Hong Kong. *International Journal of Organizational Analysis, 8*, 262–288.
- Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin, 110*, 67–85.
- *Tepper, B. J., Duffy, M. K., Hoobler, J., & Ensley, M. D. (2004). Moderators of the relationships between coworkers' organizational citizenship behavior and fellow employees' attitudes. *Journal of Applied Psychology, 89*, 455–465.
- *Terry, D. J., Nielsen, M., & Perchard, L. (1993). Effects of work stress on psychological well-being and job-satisfaction: The stress-buffering role of social support. *Australian Journal of Psychology, 45*, 168–175.
- *Terry, D. J., Rawle, R., & Callan, V. J. (1995). The effects of social support on adjustment to stress—The mediating role of coping. *Personal Relationships, 2*, 97–124.
- *Thau, S., Aquino, K., & Wittek, R. (2007). An extension of uncertainty management theory to the self: The relationship between justice, social comparison orientation, and antisocial work behaviors. *Journal of Applied Psychology, 92*, 250–258.
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.
- *Thomas, J. L., Bliese, P. D., & Jex, S. M. (2005). Interpersonal conflict and organizational commitment: Examining two levels of supervisory support as multilevel moderators. *Journal of Applied Social Psychology, 35*, 2375–2398.
- *Thompson, B. M., Kirk, A., & Brown, D. F. (2005). Work based support, emotional exhaustion, and spillover of work stress to the family environment: A study of policewomen. *Stress and Health, 21*, 199–207.
- *Thompson, C. A., & Prottas, D. J. (2005). Relationships among organizational family support, job autonomy, perceived control, and employee well-being. *Journal of Occupational Health Psychology, 11*, 100–118.
- Thoresen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Charmont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin, 129*, 914–945.
- Tierney, P., & Tepper, B. J. (2007). Introduction to *The Leadership Quarterly* special issue: Destructive leadership. *The Leadership Quarterly, 18*, 171–173.
- *Trombetta, J. J., & Rogers, D. P. (1988). Communication climate, job satisfaction, and organizational commitment: The effects of information adequacy, communication openness, and decision participation. *Management Communication Quarterly, 1*, 494–514.
- *Tsai, W.-C., Chen, C.-C., & Liu, H.-L. (2007). Test of a model linking employee positive moods and task performance. *Journal of Applied Psychology, 92*, 1570–1583.
- *Vandenberg, R. J., Park, K. O., DeJoy, D. M., Wilson, M. G., & Griffin-Blake, S. (2002). Placing job stress in perspective: An organizational network view of its antecedents and consequences. In P. Perrewé & D. Ganster (Eds.), *Historical and current perspectives on stress and health research in occupational stress and well-being* (Vol. 2, pp. 57–116). New York: JAI Press.
- *Van der Doef, M., & Maes, S. (1999). The Leiden Quality of Work Questionnaire: Its construction, factor structure, and psychometric qualities. *Psychological Reports, 85*, 954–962.
- Van der Veegt, G. S., Van de Vliert, E., & Oosterhof, A. (2003). Informational dissimilarity and OCB: The role of intrateam interdependence and team identification. *Academy of Management Journal, 46*, 715–727.
- *van Dierendonck, D., Schaufeli, W. B., & Buunk, B. P. (1998). The evaluation of an individual burnout intervention program: The role of inequity and social support. *Journal of Applied Psychology, 83*, 392–407.
- *van Emmerik, I. J. H., & Euwema, M. C. (2007). Who is offering a helping hand? Associations between personality and OCBs, and the

- moderating role of team leader effectiveness. *Journal of Managerial Psychology*, 22, 530–548.
- *van Emmerik, I. J. H., Euwema, M. C., & Bakker, A. B. (2007). Threats of workplace violence and the buffering effect of social support. *Group & Organization Management*, 32, 152–175.
- *van Oudenhoven, J. P., Mol, S., & Van der Zee, K. I. (2003). Study of the adjustment of western expatriates in Taiwan ROC with the Multicultural Personality Questionnaire. *Asian Journal of Social Psychology*, 6, 159–170.
- Van Sell, M., Brief, A. P., & Schuler, R. (1981). Role conflict and ambiguity: Integration of the literature and directions for future research. *Human Relations*, 34, 262–265.
- Viswesvaran, C., & Ones, D. S. (1995). Theory testing: Combining psychometric meta-analysis and structural equations modeling. *Personnel Psychology*, 48, 865–885.
- Viswesvaran, C., Sanchez, J. I., & Fischer, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior*, 54, 314–334.
- *Wallack, V. A., & Mueller, C. W. (2006). Job characteristics and organizational predictors of psychological empowerment among professionals within human service organizations. *Administration in Social Work*, 30, 95–115.
- *Wang, X. Y., & Sangalang, P. J. (2005). Work adjustment and job satisfaction of Filipino immigrant employees in Canada. *Canadian Journal of Administrative Sciences*, 22, 243–254.
- Warren, D. E. (2003). Constructive and destructive deviance in organizations. *Academy of Management Review*, 28, 622–632.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 18, pp. 1–74). Greenwich, CT: JAI Press.
- Wofford, J. C., & Liska, L. Z. (1993). Path-goal theories of leadership: A meta-analysis. *Journal of Management*, 19, 857–876.
- Xie, J. L., & Johns, G. (2000). Interactive effects of absence culture salience and group cohesiveness: A multi-level and cross-level analysis of work absenteeism in the Chinese context. *Journal of Occupational and Organizational Psychology*, 73, 31–52.
- *Zellars, K. L., & Perrewé, P. L. (2001). Affective personality and the content of emotional social support: Coping in organizations. *Journal of Applied Psychology*, 86, 459–467.

Received June 22, 2007

Revision received February 11, 2008

Accepted April 4, 2008