



Locus of Control at Work: A Meta-Analysis

Author(s): Thomas W. H. Ng, Kelly L. Sorensen and Lillian T. Eby

Source: *Journal of Organizational Behavior*, Dec., 2006, Vol. 27, No. 8 (Dec., 2006), pp. 1057-1087

Published by: Wiley

Stable URL: <https://www.jstor.org/stable/4093903>

REFERENCES

Linked references are available on JSTOR for this article:

[https://www.jstor.org/stable/4093903?seq=1&cid=pdf-](https://www.jstor.org/stable/4093903?seq=1&cid=pdf-reference#references_tab_contents)

You may need to log in to JSTOR to access the linked references.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



Wiley is collaborating with JSTOR to digitize, preserve and extend access to *Journal of Organizational Behavior*

Locus of control at work: a meta-analysis

THOMAS W. H. NG^{1*}, KELLY L. SORENSEN² AND LILLIAN T. EBY²

¹School of Business and Economics, The University of Hong Kong, Hong Kong

²Department of Psychology, The University of Georgia, Athens, Georgia, U.S.A.

Summary

This study meta-analyzed the relationships between locus of control (LOC) and a wide range of work outcomes. We categorized these outcomes according to three theoretical perspectives: *LOC and well-being*, *LOC and motivation*, and *LOC and behavioral orientation*. Hypotheses reflecting these three perspectives were proposed and tested. It was found that internal locus was positively associated with favorable work outcomes, such as positive task and social experiences, and greater job motivation. Our findings are discussed in relation to research on core self-evaluation and the Big Five personality traits. Copyright © 2006 John Wiley & Sons, Ltd.

Introduction

The role of personality at work has been increasingly reaffirmed (House, Shane, & Herold, 1996; Mount, Barrick, & Ryan, 2003). However, the increased attention given to the role of personality at work is often limited to the Big Five personality traits of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience (e.g., Caligiuri, 2000; George & Zhou, 2001; Judge & Cable, 1997; Kristof-Brown, Barrick, & Franke, 2002). As such, those personality traits outside of the Big Five taxonomy have received less research attention within the organizational sciences. One of these traits is locus of control (LOC), which is the extent to which people believe that they have control over their own fate.

Rotter (1966) differentiates internal and external LOC. Internals are those who believe that they are the masters of their fate and, therefore, often are confident, alert, and directive in attempting to control their external environments. Further, they often perceive a strong link between their actions and consequences. Externals, on the other hand, are those who believe that they do not have direct control of their fate and perceive themselves in a passive role with regard to the external environment. They, therefore, tend to attribute personal outcomes to external factors or luck. Among the Big Five traits, neuroticism is the most closely related to LOC (Bono & Judge, 2003). Researchers observe that individuals' LOC plays an important role at work. For instance, it is found that LOC is related to various important work outcomes including job satisfaction and job performance (Judge & Bono, 2001).

*Correspondence to: Thomas W. H. Ng, School of Business and Economics, The University of Hong Kong, Pok Fu Lam, Hong Kong. E-mail: tng@business.hku.hk

The purpose of the current study is to provide some theoretical integration of this stream of literature by quantitatively summarizing the relationships between LOC and a wide range of work outcomes. In the following sections, we first briefly describe two previous reviews in this area and delineate how our study builds upon and extends existing work. Next, we integrate the literature by discussing three major theoretical lenses through which the roles of LOC at work can be examined. Hypotheses reflecting these three perspectives are then proposed. Finally, we discuss the results of our meta-analysis.

Theoretical Background

Perceived control has been extensively examined in the psychology literature in a variety of forms (Averill, 1973). For instance, Skinner (1996) identified more than 100 constructs that had some flavor of the notion of control (e.g., action control, vicarious control, mastery, helplessness, causal attributions, etc.). The reason why the notion of control beliefs has warranted so much attention is because it is associated with a variety of cognitive, affective, behavioral, and physiological outcomes (e.g., Anderson, Hellriegel, & Slocum, 1977; Bandura, 1986; De Brabander, Boone, & Gerits, 1992; Ganster & Fusilier, 1989) across different age groups (e.g., Abel & Hayslip, 2001; Finn & Rock, 1997).

While control beliefs may partly arise from social experiences (e.g., Langer, 1983; Lefcourt, 1976), it is suggested that some people have the dispositional tendency to believe that they have more control over the external environment than others. This dispositional trait of LOC first gained attention when researchers observed that some people were relatively ‘immune’ to external reinforcement (Lefcourt, 1976; Phares, 1976). This observation led to the belief that some people (i.e., externals) fail to see a relationship between their behaviors and consequences, whether positive or negative, and therefore are not responsive to external reinforcement. Internals, on the contrary, have a relatively enduring belief that outcomes are at least partly contingent on their behaviors.

Previous reviews

In the organizational sciences, the differentiation between internal and external LOC is important for explaining how employees approach work, both attitudinally and behaviorally. We are aware of two major reviews summarizing the roles of LOC at work (Judge & Bono, 2001; Spector, 1982). Spector (1982) provides a qualitative review of the research literature. His review demonstrates that internals very often have higher levels of job motivation, job performance, job satisfaction, and leadership than do externals. Further, internals report more favorable job or role characteristics. Finally, he suggests that the relationship between LOC and turnover may be complex because there are reasons to believe that internals can be more or less likely to leave their employers depending on the situation (see p. 493). While Spector’s (1982) review is comprehensive and is the first to illustrate that LOC is related to a wide range of work outcomes, the major drawback of his study is that it is qualitative in nature. As such, conclusions drawn based on this review may be affected by the existence of measurement error and sampling biases. Another issue is that Spector’s (1982) qualitative review is over two decades old and considerable additional research exists on the topic.

More recently, Judge and colleagues (e.g., Bono & Judge, 2003; Judge & Bono, 2001; Judge, Locke, Durham, & Kluger, 1998) proposed that LOC is one of the four components (along with self-esteem, generalized self-efficacy, and emotional stability) of a higher-order construct called core self-evaluation. Core self-evaluation refers to individuals’ fundamental assessment about themselves and

their self-worth. Those who believe that they are the masters of their fate should have more favorable core self-evaluations. Further, in a meta-analysis, Judge and Bono (2001) found that internal LOC was related to job satisfaction (corrected $r = 0.32$) and job performance (corrected $r = 0.22$). While their study uses sophisticated quantitative techniques to derive conclusions with regard to the relationships between LOC and work outcomes, the shortcoming of the study is that its scope was limited to only two variables. As such, their meta-analysis does not address the premise that LOC has a widespread impact on employees' organizational lives (Spector, 1982).

The current study extends Spector's (1982) and Judge and Bono's (2001) work by providing a quantitative summary of the relationships between LOC and a broad range of criteria. In particular, we offer three different theoretical perspectives for examining the roles of LOC at work. These three perspectives are not explicitly suggested in the literature but have a strong theoretical basis. Viewing LOC through these perspectives can (a) enhance our understanding of *how* LOC may influence employees at work, (b) guide future research by identifying relevant variables as correlates of LOC, and (c) inform future theoretical development on the construct of LOC. These three perspectives are *LOC and well-being*, *LOC and motivation*, and *LOC and behavioral orientation*. It should be noted that there are no hard-and-fast criteria to categorize the outcomes examined in the current study into groups that can reflect these three perspectives without potential overlap. However, our categorization most directly reflects the respective theoretical lens discussed below.

LOC and well-being

A variety of studies in this stream of research have conceptualized LOC as a proximal predictor of individuals' well-being (e.g., Judge et al., 1998; Spector, Cooper, Sanchez, O'Driscoll, & Sparks, 2002). Specifically, an internal locus is believed to generate better well-being. People generally desire more control over different facets of their lives (Langer, 1983). It has even been suggested as early as 1930 that the need to have control over the external environment is an intrinsic human need (e.g., Adler, 1930). Indeed, the perception of control is psychologically beneficial in itself, even without the actual occurrence of control (Miller, 1980). In contrast, perceptions of a lack of control may result in experiences of greater stress and lower self-worth (Langer, 1983). Judge and colleagues (e.g., Bono & Judge, 2003; Judge & Bono, 2001; Judge et al., 1998) took the perspective of LOC as a proximal predictor of well-being even further. As mentioned above, they suggest that LOC is one of the critical elements of fundamental self-evaluation. The belief that one has control of the external environment represents a positive fundamental evaluation of self-worth, whereas the belief of a lack of control indicates a negative fundamental evaluation of self-worth. Not surprisingly, internals are more sensitive than externals to information that directly or indirectly delivers a connotation of self-worth (Phares, 1976). This perspective of LOC as a predictor of well-being or self-worth is also illustrated by the research demonstrating close relationships between external LOC and psychopathology such as feelings of helplessness (Phares, 1976), depression (Bennassi, Sweeney, & Dufour, 1988; Presson & Benassi, 1996), and other personality disorders (Watson, 1998).

Because LOC is closely related to one's well-being, it is reasonable to expect that LOC is associated with work and personal variables that mirror this well-being. In particular, we categorized these variables of well-being into two groups: general well-being and job-related affective reactions. The general well-being grouping includes the variables of *mental well-being*, *life satisfaction*, and *physical health*. These variables are commonly used indicators of overall well-being (e.g., Ryff, 1989; Spector et al., 2002). Because of their belief that the external environment is largely under their control, internals should generally be psychologically healthier than are externals. As suggested by Ganster and Fusilier (1989), the mere belief that one can exert control should be intrinsically satisfying. This may be

manifested in better mental well-being and greater life satisfaction (e.g., Brown, Cooper, & Kirkcaldy, 1996; Ryff, 1989). This psychological healthiness should also be manifested in better physical health (e.g., Abel & Hayslip, 2001; Nelson, Cooper, & Jackson, 1995). Overall, we predict that:

Hypothesis 1: Internal LOC is positively related to general well-being including mental well-being (H1a), life satisfaction (H1b), and physical health (H1c).

The group of job-related affective reactions encompasses variables reflecting employees' job satisfaction including *global job satisfaction* and *specific facets of job satisfaction* (*pay, promotion, supervisors, coworkers*), and variables directly (i.e., *affective commitment, turnover intention*) and indirectly (i.e., *hours worked, attendance*) reflecting employees' commitment to their organizations. Together, these variables reflect employees' affective reactions to their work environment. We argue that the positive well-being or self-worth associated with internals should be manifested in various life domains, including at work. When employees believe that they create and govern their own work roles rather than that their work roles are defined by their organizations, supervisors, or coworkers, they should feel more psychologically enabled and energized (Spreitzer, 1995). This positive evaluation of work roles should be associated with more positive affective reactions to one's work environment such as being more satisfied with one's job and demonstrating attitudes and behaviors that indicate dedication to one's organization (i.e., greater affective commitment, lower turnover intention, working more hours, and higher attendance). While Spector (1982) suggests that internals may have higher turnover intentions than externals because of their tendency to leave unsatisfying jobs, internals may be less likely than externals to view their jobs as unsatisfying because, as previously mentioned, they tend to hold a more positive view of their work roles. Thus, we predict:

Hypothesis 2: Internal LOC is positively related to job-related affective reactions including global job satisfaction and its specific facets (H2a), affective organizational commitment (H2b), hours worked (H2c), attendance (H2d), and negatively related to turnover intentions (H2e).

LOC and motivation

According to Deci and Ryan (1980), the psychological need for self-determination and competence are the basis for intrinsic motivation. Because internals believe that they are choice-making agents who are competent at maintaining control over their lives, they should generally possess a stronger need for self-determination and competence than do externals. Therefore, we suggest that LOC may also be viewed as a trait that relates to one's intrinsic motivation to dedicate efforts. Specifically, control is often defined as the extent to which the occurrence of an outcome is contingent on a person's responses (Seligman, 1975). Thus, those perceiving they have control should believe that their behaviors affect the likelihood of attaining desired goals or outcomes. In fact, it is suggested that the major reason why people desire control is that it increases the predictability of the effort-outcome link (Parker, 1993). This effort-outcome link represents a core element of Expectancy theory (Vroom, 1964) in which one of the major tenets is that the stronger the perceived effort-outcome link, the stronger one's motivation to exert effort. The above reasons suggest that LOC is closely related to one's intrinsic motivation. That is, internals are those who perceive that there is a strong link between their actions and expected goals and outcomes.

Other researchers also highlight this motivational aspect of LOC. For instance, Yukl and Latham (1978) found that internals set more difficult goals and have stronger needs for achievement than do externals, reflecting internals' stronger intrinsic motivation to obtain desired outcomes. Phares (1976) suggests that internals are even willing to defer gratification to satisfy their need for achievement. Also, it has been suggested that those who perceive greater control should perceive more opportunities at work (Ganster & Fusilier, 1989; Lefcourt, 1976), which should serve as an important source of work

motivation (Schneider, Gunnarson, & Wheeler, 1992). Further, an internal locus can be viewed as a source of psychological empowerment, predisposing individuals to exert greater effort on work tasks (Koberg, Boss, Senjem, & Goodman, 1999; Spreitzer, 1995). Moreover, Mudrack (1990) found in a meta-analysis that internal locus was negatively related to the dispositional trait of Machiavellianism, reflecting that internals prefer to rely on their efforts to obtain desired goals rather than manipulation and deception. Finally, in reviewing the empirical literature, Spector (1982) found support for the assertion that internals have stronger faith in both the effort-performance and performance-reward relationships. Overall, it appears that LOC can be viewed as a personality trait that predicts one's internal motivation and the belief in one's ability to achieve desirable goals and outcomes. A lack of belief in a link between efforts and outcomes (i.e., an external locus) should preclude one's achievement striving (Lefcourt, 1972; Noe, 1988).

This literature, then, suggests that LOC should be related to variables that directly or indirectly reflect one's job motivation. We include the variables of *intrinsic task motivation, expectancy, instrumentality, job involvement, self-development, self-efficacy, and psychological empowerment* to indicate this job motivation (e.g., Brown, 1996; King, 2004; Spreitzer, 1995; Stajkovic & Luthans, 1998; Vroom, 1964). Specifically, because internals perceive they have greater likelihood of obtaining desirable work outcomes than externals, they are more likely to report higher intrinsic motivation to work on their job tasks, greater optimism about the effort-performance (expectancy) and performance-reward (instrumentality) links, higher involvement with their jobs, and greater engagement in developmental activities as an investment in their work future. Further, compared to externals, internals may have a greater sense of task competence (self-efficacy) because of their confidence in their ability to exert control over their work and obtain valued outcomes. Finally, compared to externals, they should have a stronger sense of empowerment because the belief of being able to take control and make choices often indicates' one's power potential (Liden & Arad, 1996). The above reasoning leads us to predict that:

Hypothesis 3: Internal LOC is positively related to job motivation, manifested in intrinsic task motivation (H3a), expectancy (H3b), instrumentality (H3c), job involvement (H3d), self-development (H3e), self-efficacy (H3f), and psychological empowerment (H3g).

More distally, internals' job motivation may be manifested in high *task performance* and *career success* because internals see rewards for working hard, and hard work is a human capital investment that often is rewarded in schools, organizations, and in the labor market (Becker, 1964). More specifically, several meta-analyses have shown a positive relationship between internal LOC and academic achievement (Findley & Cooper, 1983; Kalechstein & Nowicki, 1997). Further, previous research has shown a consistent positive relationship between job motivation and performance on core tasks (Fried & Ferris, 1987). Therefore, internals tend to have better task performance than do externals (Judge & Bono, 2001). In terms of career success, the higher job motivation of internals should result in greater salary earned and higher job levels attained in organizations, which are two common indicators of career success (Ng, Eby, Sorensen, & Feldman, 2005). The contest-norm mobility of career success (Ng et al., 2005) suggests that those who are willing to invest in their own development and those who work harder are more qualified to compete for career rewards such as salary and promotions. Overall, we predict that:

Hypothesis 4: Internal LOC is positively related to task performance (H4a) and career success including salary earned (H4b) and organizational level (H4c).

LOC and behavioral orientation

LOC may also be viewed as a predictor of the tendency for people to exert active control over the environment. For instance, Spector (1982) suggests that 'not only do internals perceive greater control,

but they may actually seek situations in which control is possible' (p. 483). Thus, LOC is believed to reflect how a person would tend to behave on the job and in the social environment, or more generally, in life. In short, internals should more actively attempt to retain control at work than should externals. For example, Phares (1976) suggests that internals are able to create and shape their work experiences in a way that is most favorable to them. Further, Kahle (1980) found that when subjects were asked to choose between a task that requires either luck or skill, internals preferred a task requiring skill whereas externals preferred a task requiring luck. Therefore, researchers have explicitly or implicitly suggested that LOC proximally predicts people's behavioral tendency to exert control at work.

The tendency to exert control at work may be related to several important task and social outcomes in organizations. As suggested by Spector (1982), internals attempt to align their task or social experiences with their internal locus. These task and social experiences may include 'work flow, task accomplishment, operating procedures, work assignments, relationships with supervisors and subordinates, working conditions, goal setting, work scheduling, and organizational policy' (Spector, 1982, p. 485). With respect to task experience, internals should be more proactive than externals in seeking out work tasks that have desirable attributes (cf. Judge et al., 2000) such as tasks that have higher motivating potential (Hackman & Oldham, 1980). As such, we predict:

Hypothesis 5: Internal LOC is positively related to positive task experiences, including job autonomy (H5a), skill variety (H5b), task significance (H5c), job feedback (H5d), and job challenge (H5e).

Based on a similar reasoning, it is expected that internals would be less likely than externals to tolerate or work on tasks with negative job or role characteristics. The strong sense of personal control of internals may lead them to be more proactive to reduce or manage negative task experiences. For example, internals may have less work-family conflict because they may actively seek out help and solutions to prevent or reduce its occurrence. Further, internals should perceive work stressors as more manageable and less threatening than do externals (Gatchel, 1980; Wanberg, 1997). Based on these reasons, we predict that internals will experience fewer negative task experiences. These may include less *role overload*, *role conflict*, *role ambiguity*, and *work-family conflict*. For these same reasons, internals may report less *job stress* and *burnout*.

Hypothesis 6: Internal LOC is negatively related to negative task experiences, including work role problems (H6a), work-family conflict (H6b), job stress (H6c), and burnout (H6d).

In terms of social experiences, internals may work more actively than externals to establish and maintain positive relationships with others. For instance, internals are more likely to be socially skillful and to engage in social influence tactics than externals (Kapoor, Ansari, & Shukla, 1986; Ringer & Boss, 2000). Not surprisingly, compared to externals, internals are more able to initiate social relationships (Turban & Dougherty, 1994), influence others (Phares, 1965), and more likely to be perceived as group leaders (Anderson & Schneier, 1978). Also, internals are often more considerate than are externals (Lefcourt, 1985; Pryers & DiStefano, 1971), suggesting that they may be more willing to actively devote psychological and temporal resources to maintaining social relationships. Consistent with this characterization of internals, Phares (1976) suggests that internals should exhibit more helping behaviors in social contexts than do externals. In summarizing the potential role of LOC in social relationships, Martin, Thomas, Charles, Epitropaki, and McNamara (2005) conclude that, 'locus of control is an important antecedent of the quality of relationship that people develop with their managers' (p. 145). Overall, it appears that internals are often more socially successful than externals are and therefore enjoy more favorable social experiences. Therefore, we predict:

Hypothesis 7: Internal LOC is positively related to positive social experiences, including social support received (H7a), social integration (H7b), and relationships with supervisors (H7c).

The tendency to assert behavioral control may also be manifested in internals' coping strategies at work. In the face of stressors (e.g., role overload) or negative social experiences (e.g., interpersonal conflict), internals tend to react in a more constructive fashion than externals do such as actively looking for solutions (Butterfield, 1964; Gianakos, 2002) rather than relying solely on emotional support. This is because the 'spirit' of problem-focused coping is in line with the 'spirit' of maintaining active control in life. In contrast, emotion-focused coping in strained situations implies an escaping response, a strategy that is not congruent with an internal locus (cf. Anderson & Schneier, 1978; Solomon, 1988). Thus, we predict that:

Hypothesis 8: Internal LOC is positively related to problem-focused coping (H8a) and negatively related to emotion-focused coping (H8b).

Organizational Context

Contextual Information about the Studies Included in Meta-Analysis

The studies included in the current meta-analysis were identified in the *ABI INFORM* and *PsycINFO* databases. Thirty-five per cent of the studies were published before 1990, 28 per cent were published between 1990 and 2000, and the remaining 37 per cent were published between 2000 and 2005. Among the 222 studies identified, nine of these were unpublished dissertations and manuscripts. Thirty-three studies contained multiple samples. Twenty-three studies were conducted outside the United States. Eleven studies were longitudinal in nature and the rest of the others were cross-sectional. The average age across all samples was 35 years, the average organizational tenure was 9.3 years, 51 per cent of subjects were female, 94 per cent of subjects were Caucasian, 68 per cent were non-management employees, 48 per cent involved customer contact, and 16 per cent of these studies used student samples. Examples of customer-contact jobs in our pool of studies are financial service agents, nurses, restaurant employees, and educators. Examples of no-customer-contact jobs are miners, administrative staff, and engineers.

Method

Literature search

We located relevant articles published in June 2005 or before by searching for keywords (e.g., 'locus of control,' 'internality,' 'externality,' 'perceived control,' 'mastery') in the *ABI INFORM* and *PsycINFO* databases. We also manually reviewed the articles published in the last 20 years in the following journals: *Academy of Management Journal*, *Journal of Applied Psychology*, *Journal of Management*, *Journal of Occupational and Organizational Psychology*, *Journal of Organizational Behavior*, *Journal of Personality and Social Psychology*, *Journal of Vocational Behavior*, *Organizational Behavior and*

Human Decision Processes, Personnel Psychology, and Work and Stress. Further, the Social Sciences Citation Index was used to locate studies citing Rotter's (1966) and Spector's (1988) articles in the last 20 years. We also attempted to include unpublished studies by searching for relevant articles in the Dissertation Abstract International database. The reference lists of all the identified articles were also examined carefully in order to locate any other relevant articles. Finally, only those studies that treated LOC as a personality trait were included. This search process yielded a total of 222 relevant articles. A list of correlates of LOC, along with their corresponding operationalizations, appears in Table 1.

Meta-analysis procedure

Hunter and Schmidt's (1990) meta-analysis technique was adopted. The effect sizes of interest were correlation coefficients. We first corrected each correlation for unreliability in the measurement of LOC and the correlates by adopting the alpha values (α) reported in the study. The rationale was that LOC and most correlates were psychological measures. As such, these responses might contain measurement error. Correlations corrected for unreliability therefore reflect 'purer' effect sizes. Further, because different studies may measure the same construct using different scales, this disattenuation process adjusted for the different levels of measurement error contained in different scales (Hunter & Schmidt, 1990; Viswesvaran & Ones, 2000). If no alpha value was reported for a particular scale in a study, an average alpha value calculated from the rest of the studies using the same scale was taken as a substitute.

A variety of scales were used to operationalize LOC. All of these scales measured LOC as a continuous variable (i.e., high internality was the same as less externality). The most commonly used measure was Rotter's (1966) 23-item scale. This scale asks respondents to indicate which of the two statements in each pair better represents their beliefs. It was adopted in 120 studies (54 per cent) and had an average reliability of 0.70 (based on 94 samples). Another commonly used scale was Spector's (1988) Work LOC scale. This scale measures respondents' generalized control beliefs in the work domain (e.g., promotions are a matter of good fortune). It was adopted by 43 studies (19 per cent) and had an average reliability of 0.78 (based on 40 samples). Other less commonly used scales of LOC included Andriessen's (1972), Levenson's (1974), Paulhus' (1983), Pettersen's (1985), and others. Further, we included those studies that measured only one specific facet of LOC (Levenson, 1974). On the other hand, to simplify the meta-analysis procedure, those studies that measured more than one facet of LOC (e.g., Chung & Ding, 2002) were excluded from the current meta-analysis. In this study, a higher scale score represented more of an internal LOC.

For those studies that reported corrected correlations, no disattenuation was performed. For those studies in which authors used the same dataset and reported the same correlation for multiple studies, the correlation in question was recorded only once to avoid double-counting. For studies that contained multiple measurements such as longitudinal studies, we averaged the correlation associated with the same measures. Finally, in order to correct for sampling error, we calculated the sample size weighted corrected correlation. A corrected correlation was judged to be significant at $\alpha = 0.05$ when its 95 per cent confidence interval did not include the value of zero. Like Judge and Bono (2001), we also reported 80 per cent credibility intervals around the corrected correlations. Credibility intervals indicate the variability of individual correlations across cumulated studies (Whitener, 1990). An 80 per cent credibility interval excluding zero suggests that '10 per cent of the individual correlations are equal to or less than zero (10 per cent of correlations would also lie in the high end of the distribution)' (Judge & Bono, 2001, p. 83).

Table 1. Definition or operationalization of correlates of locus of control

Correlates	Definition or operationalization
General well-being	
Mental well-being	Self-rated mental health, higher score indicates better mental health
Life satisfaction	Self-reported satisfaction with one's life
Physical health	(a) Overall physical health: Self-reported frequency of physical symptoms, higher score indicates less symptoms or better physical health (b) Objective health index: Clinical health measures such as blood pressure, heart rate change, stress hormone secretion. Higher score indicates better physical health
Job satisfaction	
Global job satisfaction	Self-reported job satisfaction
Satisfaction w/pay	Self-reported satisfaction with pay or salary
Satisfaction w/promotion	Self-reported satisfaction with promotion
Satisfaction w/supervisor	Self-reported satisfaction with supervisor
Satisfaction w/coworkers	Self-reported satisfaction with coworkers
Commitment	
Affective commitment	Self-reported affective or attitudinal commitment to organization
Hours worked	Number of hours worked
Attendance (or absenteeism)	From company record
Turnover intention	Self-reported intention to leave one's current organization
Job motivation	
Intrinsic task motivation	Self-reported motivation to engage in work tasks or work effort
Expectancy	Self-reported evaluation of strength of the effort-job performance link
Instrumentality	Self-reported evaluation of strength of the job performance-reward link
Job involvement	Self-reported extent to which work is central to one's life
Self-development	Self-reported extent to which one engages in self-development activities such as career planning
Self-efficacy	Self-reported belief of task competence
Psychological empowerment	Self-reported extent to which one feels empowered at work
Job performance	
Task performance	(a) Others-rated task performance including performance rated by supervisors and objective performance measures (b) Self-rated task performance
Career success	
Salary	Annual earnings reported by self
Organizational level	Self-reported current organizational level; higher score indicates a higher organizational level
Positive task experiences	
Job autonomy	Self-reported job/task autonomy or control
Skill variety	Self-reported skill variety required by the job
Task significance	Self-reported job or task significance (importance)
Job feedback	Self-reported job feedback received
Job challenge	Self-reported extent to which one's job is challenging
Negative task experience	
Role overload	Self-reported work/role overload
Role ambiguity	Self-reported ambiguity or clarity of role expectation at work
Role conflict	Self-reported conflict between different work roles
Work-family conflict	Self-reported extent to which work interferes family or family interferes work
Job stress	Self-reported felt stress at work
Overall burnout	Self-reported overall burnout
Emotional exhaustion	Self-reported facet of burnout (depletion of emotional resources)
Depersonalization	Self-reported facet of burnout (disengagement, uncaring attitudes)

(Continues)

Table 1. (Continued)

Correlates	Definition or operationalization
Lack of personal accomplishment	Self-reported facet of burnout (diminished sense of accomplishment)
Social experiences	
Social support	Self-reported overall social support received at work (i.e., this measure does not differentiate sources of support in original studies)
Social integration	Self-reported social integration at work (e.g., group cohesiveness)
Relationship w/supervisor	Self-reported quality of relationship with supervisors (e.g., leader-member exchange) or perceived supervisor support
Coping strategies	
Problem-focused coping	Self-reported extent to which one copes with stress by task-related behaviors (e.g., increasing efforts, actively looking for solutions)
Emotion-focused coping	Self-reported extent to which one copes with stress by emotion-relieving behaviors (e.g., sharing with others)

Moderator analyses

We performed a search for moderators on the following relationships: LOC-job satisfaction, LOC-task performance, and LOC-mental well-being. These three relationships have been most extensively researched in the literature. As such, it is important to examine whether these relationships may vary according to sample characteristics and research designs. There were two groups of moderators of interest here.

The first group represents sample characteristics. Specifically, we investigated whether the aforementioned LOC-outcome relationships may vary across employees' age, tenure, gender, job levels (managers vs. non-managers), and job types (customer contact vs. no customer contact), five major characteristics that are often different across samples. The second category of moderators relates to the research design utilized. Specifically, we investigated whether the LOC-outcome relationships vary across measures of LOC used (Rotter's vs. Spector's vs. Others' scales) and student versus non-student samples. Overall, if effect sizes did not vary across these sample and research design characteristics, it suggested that the effect sizes had some generalizability across these characteristics.

A significant value of Q statistic indicates that there is a significant level of variability in the effect size to warrant a moderator search (Hedges & Olkin, 1985). In testing for the moderating role of age, we took the (natural-logged) average age associated with each sample as an independent variable to predict the Fisher-z-transformed correlation coefficient for the LOC-outcome relationship, using weighted least squares multiple regression (Steel & Kammeyer-Mueller, 2002). This technique of testing for moderators in meta-analyses was found to be the most robust compared to other methods (Steel & Kammeyer-Mueller, 2002). If age is found to be a significant predictor, it suggests that the LOC-outcome relationship varied as age changed.

The same technique was used for testing the remaining moderators. Specifically, for organizational tenure, we used average organizational tenure associated with each sample as the independent variable to predict the LOC-outcome relationships like before. For gender, we used the percentage of female respondents in each sample as a proxy independent variable. For job level, we used a dummy variable (managers vs. non-managers) as the independent variable. For job type, we also used a dummy variable (customer contact vs. no customer contact) as the independent variable. Those studies

sampling respondents of mixed job levels or types were excluded from these analyses. For measures of LOC scales, we used two dummy variables as the independent variables to predict LOC-outcome relationships. These two dummy variables were coded to represent a comparison across Rotter's (1966) scale, Spector's (1988) scale, and the rest of other LOC measures. Finally, for type of sample, we used a dummy variable (students vs. non-students) as the independent variable.

It should be noted that for testing variables reflecting research design, the two independent variables were entered into the regression model simultaneously. This helped account for the potential multicollinearity. However, for testing variables reflecting sample characteristics, the five variables were entered into separate regression models. This is because there were limited studies providing information on all five variables. Running separate regression models enabled us to include a minimum of at least 15 studies in moderator search.

Results

Table 2 illustrates the results of the meta-analysis of correlates of LOC. H1a to H1c, which predicted that LOC would be related to general well-being, were all supported. Specifically, internal LOC was positively related to mental well-being ($r_c = 0.36$) and life satisfaction ($r_c = 0.35$). It was also positively related to self-reported physical health ($r_c = 0.31$) and the objectively measured health index ($r_c = 0.14$).

H2a to 2e, which predicted that LOC would be associated with job-related affective reactions, were also supported. An internal LOC was positively related to global job satisfaction ($r_c = 0.33$) and its specific facets including satisfaction with pay ($r_c = 0.19$), promotion ($r_c = 0.26$), supervisor ($r_c = 0.24$), and coworkers ($r_c = 0.24$). Further, internal LOC was related to variables reflecting commitment. They included affective organizational commitment ($r_c = 0.24$), hours worked ($r_c = 0.04$), company-record attendance ($r_c = 0.13$), and turnover intention ($r_c = -0.17$).

H3a to H3g predicted that LOC would be related to job motivation variables. These hypotheses were also supported. An internal LOC was positively related to intrinsic task motivation ($r_c = 0.18$), expectancy ($r_c = 0.32$), instrumentality ($r_c = 0.29$), job involvement ($r_c = 0.22$), self-development ($r_c = 0.04$), self-efficacy ($r_c = 0.28$), and psychological empowerment ($r_c = 0.24$).

H4a to H4c, which predicted that LOC would be related to task performance and career success, were also supported. An internal LOC was positively related to others-rated task performance ($r_c = 0.17$) as well as self-rated task performance ($r_c = 0.12$). An internal LOC was also related to career success including salary earned ($r_c = 0.16$) and organizational level ($r_c = 0.04$).

H5a to H5e predicted that an internal LOC should be related to favorable task experiences. We found support for all these hypotheses. In particular, an internal LOC was positively associated with job autonomy ($r_c = 0.24$), skill variety ($r_c = 0.10$), task significance ($r_c = 0.17$), job feedback ($r_c = 0.25$), and job challenge ($r_c = 0.26$).

H6a to H6d predicted that an internal LOC should be related to fewer negative task experiences. These hypotheses were also supported. Specifically, an internal LOC was related to less role overload ($r_c = -0.08$), role ambiguity ($r_c = -0.20$), role conflict ($r_c = -0.31$), and work-family conflict ($r_c = -0.07$). Further, internal LOC was negatively related to job stress ($r_c = -0.24$), overall burnout ($r_c = -0.27$), and its facets including emotional exhaustion ($r_c = -0.25$), depersonalization ($r_c = -0.16$), and lack of personal accomplishment ($r_c = -0.05$).

Table 2. Meta-analytical relationships between locus of control and criteria

	Correlates	N	k	r_u	r_c	SDc	95% LCI	95% UCI	80% LCV	80% UCV	Ω
H1a	General well-being	16 985	67	0.30	0.36	0.14	0.35	0.38	0.24	0.48	270.04**
H1b	Mental well-being	7310	22	0.27	0.35	0.19	0.33	0.37	0.19	0.51	100.23**
H1c	Life satisfaction										
H1d	Physical health	15 810	60	0.22	0.31	0.26	0.29	0.32	0.09	0.53	905.23***
H1e	Self-reported	1795	9	0.13	0.14	0.17	0.09	0.19	0.01	0.28	40.68*
	Objective health index										
	Average correlation				0.33						
H2a	Job satisfaction	30 622	128	0.26	0.33	0.23	0.32	0.34	0.14	0.52	983.51***
	Global job satisfaction	2242	10	0.15	0.19	0.15	0.14	0.24	0.06	0.32	21.70*
	Satisfaction w/pay	1968	9	0.21	0.26	0.11	0.20	0.31	0.17	0.35	16.25*
	Satisfaction w/promotion	2332	11	0.20	0.24	0.17	0.20	0.29	0.10	0.38	33.57*
	Satisfaction w/supervisor	2278	11	0.19	0.24	0.16	0.19	0.28	0.11	0.37	37.20*
	Average correlation				0.31						
H2b	Commitment	6252	28	0.21	0.24	0.21	0.21	0.27	0.06	0.42	255.80**
H2c	Affective commitment	7035	11	0.03	0.04	0.03	0.02	0.07	0.01	0.07	8.42
H2d	Hours worked	2927	6	0.11	0.13	0.05	0.09	0.17	0.09	0.17	10.05*
H2e	Company-record attendance	8065	30	-0.14	-0.17	0.14	-0.19	-0.15	-0.29	-0.05	120.01**
	Turnover intention				0.17						
	Average correlation										
H3a	Job motivation	7445	17	0.14	0.18	0.14	0.15	0.21	0.06	0.30	60.95*
H3b	Intrinsic task motivation	2030	9	0.27	0.32	0.21	0.27	0.37	0.14	0.50	42.93*
H3c	Expectancy	1546	8	0.23	0.29	0.12	0.23	0.35	0.19	0.39	5.16
H3d	Instrumentality	10 856	34	0.15	0.22	0.14	0.20	0.24	0.10	0.34	120.50**
H3e	Job involvement	4560	9	0.04	0.04	0.22	0.01	0.08	-0.15	0.23	69.49*
H3f	Self-development	3139	15	0.22	0.28	0.20	0.24	0.32	0.11	0.45	63.88**
H3g	Self-efficacy	1302	4	0.22	0.24	0.15	0.15	0.33	0.11	0.37	17.42*
	Psychological empowerment										
	Average correlation										

	Job performance	9443	36	0.13	0.17	0.14	0.15	0.19	0.05	0.29	106.70**
	Others-rating task performance	5854	19	0.09	0.12 0.15	0.02	0.09	0.14	0.10	0.14	13.02*
	Self-rating task performance										
	<i>Average correlation</i>										
H4a	Career success	10012	24	0.13	0.16 0.11	0.09 0.15	0.14 0.01	0.18 0.06	0.08 -0.09	0.24 0.17	58.22* 109.74**
	Salary	6984	15	0.03	0.04 0.11						
	Organizational level										
	<i>Average correlation</i>										
H4b	Positive task experiences	11168	30	0.16	0.24	0.15	0.22	0.25	0.11	0.37	97.69**
H4c	Job autonomy	5450	10	0.08	0.10	0.08	0.08	0.13	0.03	0.17	21.45*
	Skill variety	4623	8	0.13	0.17	0.01	0.14	0.21	0.16	0.17	3.84
	Task significance	4207	8	0.19	0.25	0.19	0.22	0.29	0.09	0.41	65.51**
	Job feedback	2020	7	0.20	0.26	0.20	0.21	0.32	0.09	0.43	43.01*
	<i>Average correlation</i>				0.21 0.21						
H5a	Negative task experiences	5182	19	-0.06	-0.08	0.13	-0.11	-0.05	-0.19	0.03	57.91**
H5b	Role overload	8925	27	-0.15	-0.20	0.23	-0.22	-0.18	-0.39	-0.01	233.84**
H5c	Role ambiguity	6040	26	-0.21	-0.31	0.26	-0.34	-0.28	-0.53	-0.09	199.07**
H5d	Role conflict	2718	14	-0.05	-0.07	0.20	-0.11	-0.03	-0.24	0.10	70.75**
H5e	Work-family conflict	7686	35	-0.19	-0.24	0.18	-0.26	-0.22	-0.39	-0.09	177.35**
	Job stress	736	3	-0.23	-0.27	0.20	-0.43	-0.11	-0.44	-0.10	11.18*
	Overall burnout	2328	9	-0.20	-0.25	0.21	-0.30	-0.21	-0.43	-0.07	45.06*
	Emotional exhaustion	1621	7	-0.14	-0.16	0.16	-0.23	-0.11	-0.29	-0.03	21.96*
	Depersonalization	1254	6	-0.05	-0.05	0.33	-0.13	-0.02	-0.33	0.23	78.89**
	<i>Average correlation</i>				0.20 0.20						

(Continues)

Table 2. (Continued)

Correlates	N	k	r_u	r_c	SDc	95% LCI	95% UCI	80% LCV	80% UCV	Q
Social experiences										
H7a Social support	3234	18	0.10	0.13	0.16	0.09	0.17	0.00	0.26	56.79*
H7b Social integration	2297	9	0.16	0.20	0.24	0.16	0.25	0.00	0.40	74.72*
H7c Relationship w/supervisor	3063	11	0.13	0.16	0.32	0.12	0.20	-0.11	0.43	149.04**
Average correlation				0.16						
Coping strategies										
H8a Problem-focused coping	6068	26	0.16	0.22	0.18	0.19	0.24	0.07	0.37	117.83**
H8b Emotion-focused coping	5804	24	-0.07	-0.10	0.21	-0.12	-0.07	-0.28	0.08	132.70*
Average correlation				0.16						

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: N = cumulative sample size; k = number of studies cumulated; r_u = sample-size weighted uncorrected correlation; r_c = sample-size weighted corrected correlation; SDc = standard deviation of r_c ; LCI = lower bound of confidence interval; UCI = upper bound of confidence interval; LCV = lower bound of credibility interval; UCV = upper bound of credibility interval; Q = Q statistics.

H7a to H7c predicted that an internal LOC would be related to more favorable social experiences. These hypotheses were supported. An internal LOC was related to greater social support received ($r_c = 0.13$), greater social integration at work ($r_c = 0.20$), and better relationship with supervisors as expected ($r_c = 0.16$).

Finally, with regard to H8a and 8b which predicted that LOC would be related to coping strategies, we found that an internal LOC was positively related to problem-focused coping ($r_c = 0.22$) and negatively to emotion-focused coping ($r_c = -0.10$). Thus, both hypotheses were supported.

Next, we calculated an average meta-analytic correlation for each theoretical group of correlates (see Table 2). This value was calculated by first weighting the absolute value of each correlation by its associated k (i.e., the number of studies cumulated), then summing these values and dividing the total by the aggregated k (i.e., $\sum k_i |r_i| / \sum k_i$, where i was the i th correlate in each category). This served as a rough indicator of the extent to which each group of correlates, on average, was related to LOC (Ng et al., 2005).

We found that the average absolute effect sizes associated with the variables reflecting general well-being as well as variables reflecting job satisfaction were the largest among all outcome variables ($|0.33|$ and $|0.31|$, respectively). The average absolute effect size was $|0.17|$ for commitment variables. The average absolute effect size was $|0.22|$ for job motivational variables, $|0.15|$ for task performance, and $|0.11|$ for career success. Finally, the average absolute effect size was $|0.21|$ for variables reflecting positive task experiences, $|0.20|$ for variables reflecting negative task experiences, $|0.16|$ for variables reflecting social experiences, and $|0.16|$ for variables reflecting coping strategies. Thus, it appears that internal LOC, on average, is more strongly related to employees' well-being than job motivation or variables which are indicative of behaviors aimed at asserting control at work.

Moderator analyses

The credibility intervals associated with seven of the relationships in Table 2 included the value of 0, suggesting that there may be sub-populations in these relationships (Whitener, 1990). On the other hand, the more sensitive Q statistic suggested that many relationships were associated with a significant level of variability, including the LOC-job satisfaction ($Q = 983.51, p < 0.001$), LOC-task performance ($Q = 106.70, p < 0.01$), and LOC-mental well-being ($Q = 270.04, p < 0.01$) relationships. This suggested that moderators of these relationships were likely to exist. First, we examined whether sample characteristics (age, gender, organization tenure, job level, and job type) moderated the strength of the LOC-outcome relationships. We found that none of the five sample characteristics moderated any of the three LOC-outcome relationships.

Next, we examined whether research designs (measures of LOC, student vs. non-student samples) moderated the strength of the LOC-outcome relationships. We found that none of the three LOC-outcome relationships was moderated by research designs with one exception. Namely, for the LOC-job satisfaction link, we found that studies adopting Spector's (1988) scale had stronger uncorrected effect sizes than those adopting measures other than Rotter's (1966) and Spector's (1988) scales ($r = 0.33$ vs. $r = 0.22$, respectively). These moderation results are also consistent with Bennassi et al.'s (1988) meta-analysis that out of the seven moderators they examined, only scale measures moderated the LOC-depression relationship. Overall, these results suggest that (a) LOC has a relatively consistent relationship with job satisfaction, task performance, and mental well-being across the sample characteristics and research designs examined, (b) perhaps the relationships examined are moderated by other variables that are more substantive in nature, and (c) the research question should not only be *whether* the strength of the LOC-outcome relationships differs

across groups, but *how* control is manifested. We address this issue further in the Discussion section.

Discussion

The purpose of this study was to meta-analyze the relationship between LOC and a variety of work outcomes. In so doing, we also attempt to focus researchers' attention on three theoretical perspectives through which the roles of LOC at work can be viewed or examined. With respect to the perspective of *LOC and well-being*, we obtained support (Hypotheses 1 and 2). LOC was related to measures that reflected general well-being as well as job-related affective reactions. With respect to the perspectives of *LOC and motivation* (Hypotheses 3 and 4) and *behavioral orientation* (Hypotheses 5 through 8), we also found support, though the effect sizes for the variables reflecting these two perspectives were generally weaker. Of importance here is to recognize that most of the outcome variables examined represent the 'mainstay' variables used by organizational researchers to address a host of different conceptual frameworks and questions. This has an important research implication. Namely, it indicates that LOC is related to a variety of organizational phenomena and should not be minimized or ignored in future organizational research.

LOC is a construct that has a strong cognitive focus (Lefcourt, 1992) because it represents the extent to which a person *believes* that s/he has control. As such, perhaps the best approach to understand the role of LOC at work is to untangle how LOC is related to people's cognitions. In fact, the positive findings observed in the current study indicate that LOC may be related to attitudinal and behavioral outcomes at work mainly via three *cognitive processes*: self-evaluation of well-being, internal motivation, and a cognitive orientation of maintaining active behavioral control.

The first cognitive process is self-evaluation. This cognitive process reflects the perspective of viewing LOC as a well-being that we discussed earlier. As mentioned, LOC has a close relationship with one's self-worth (Judge & Bono, 2001). LOC may predispose one to have an 'online' or ongoing evaluation of self-worth. For instance, internals are more sensitive than externals to information relevant to self-worth (Phares, 1976). This on-going evaluation of self-worth allows people to adjust their perceptions of control in life. The conclusion of self-evaluation (i.e., positive or negative) should in turn relate to how one approaches work and career. For example, some of the immediate correlates of a positive evaluation of self-worth are positive general well-being and favorable job-related affective reactions.

The second cognitive process by which LOC is related to other variables is motivation. This cognitive process reflects our earlier discussion of taking LOC as a motivational construct. Internals perceive a high likelihood of obtaining their desirable outcomes given their efforts, whereas externals regard their behaviors as unlikely to bring the targeted outcomes. However, this does not mean that LOC is the same as self-efficacy (Bandura, 1997). The general belief that actions lead to desired outcomes (internal locus) should be the foundation upon which confidence in different life domains, including task-specific confidence (self-efficacy), can be built (Phillips & Gully, 1994). The stronger expectancy of the effort-outcome relationship for internals should be associated with those variables in the work domain that reflect one's work motivation, such as motivation to learn and sense of empowerment.

The last cognitive process is the formulation of behavioral intent to control. We discussed earlier how LOC is closely related to one's behavioral orientation at work. As suggested by the theory of reasoned action (Ajzen & Fishbein, 1975), there must be an intention to exert behavioral control preceding one's

behaviors to exert control. The formulation of this intention is largely motivated by the belief that one is the master of one's own fate and therefore one should maintain active behavioral control. While the formulation of this intention to control can be influenced by other dispositional traits (e.g., cognitive ability) and situational factors (e.g., organizational norms), the more direct determinant may be one's LOC. This cognitive process should be associated with behaviors of active control, which in turn may be related to one's task and social experiences as well as coping behaviors.

These three cognitive processes are likely to be performed at the same time. Further, they are closely related. Specifically, one's positive conclusion of self-evaluation (from the self-evaluation process) provides a basis for seeing a likelihood of obtaining the desired outcomes (the motivational process). On the other hand, a negative conclusion of self-evaluation prevents one from being optimistic about the likelihood of obtaining the desired outcomes. A positive self-evaluation may also provide an impetus to assert active behavioral control (the formulation of behavioral intent) in order to maintain or protect one's self-image. In contrast, a negative self-evaluation may de-motivate one from intending to take active control of life. Finally, one's positive or negative assessment of the likelihood of obtaining desired outcomes may also be immediately translated into the intensity of behavioral intent.

These three cognitive processes also resemble the emotional and motivational regulation strategies that people often engage in over their life course as proposed by Kuhl (1985). Specifically, the ongoing process of evaluating one's self-worth partly serves to protect one's emotional state or well-being, whereas the motivational process partly serves to maintain or adjust one's motivation in different life domains. The formulation of behavioral intent to control can be viewed as an immediate outcome of these two regulatory processes. Overall, this cognitive view of LOC helps answer the call for dedicating more attention to the processes underlying internals' and externals' approaches to life (Lefcourt, 1992). Therefore, the current study helps unfold the unexamined mediating processes associated with the relationships between LOC and variables of interest in the organizational sciences.

Implications for other personality research

As the research on core self-evaluation gains momentum (e.g., Judge, Erez, Bono, & Thoresen, 2003), it seems imperative to understand the fundamental role of LOC at work, which should help enhance the explanatory and predictive power of the construct of core self-evaluation. For instance, Erez and Judge (2001) found that core self-evaluation is related to goal setting motivation, which, in turn, relates to activity level and job performance. The strong link between core-self evaluation and goal setting motivation observed in the Erez and Judge's study is not surprising partly because LOC, as we reasoned, is a construct representing one's internal motivation to dedicate efforts to attain desired goals and outcomes. In fact, among the four contributing traits of core self-evaluation, internal LOC has the strongest correlation with task motivation (see Table 2 in Erez & Judge) and with goal setting motivation (see Table 4 in their study) too. Therefore, our study provides a foundation upon which future research on core self-evaluations can be theoretically built. For instance, Judge et al. (2000) examined task characteristics as mediators of the effect of core self-evaluation on job satisfaction. The current study suggests that besides task experiences, social experiences may be another important mediator because we found that one of the contributing traits, LOC, related to social experiences, which in turn should be related to job satisfaction.

Our study also has implications for research on the Big Five personality traits. Bono and Judge (2003) conclude that how LOC (and other traits of core self-evaluation) can be integrated into the Big Five taxonomy is still not entirely clear. They suggest that the four traits of core self-evaluation (LOC, emotional stability, self-esteem, generalized self-efficacy) may collectively represent 'a broader, more construct valid, measure of Emotional Stability' (p. 13). Interpreting LOC in relation to the Big Five

personality taxonomy in this way, we should see at least some similarity between correlates of LOC and correlates of emotional stability. We found evidence to support this perspective. For instance, Judge, Heller, and Mount (2002) found in their meta-analysis that emotional stability was related to job satisfaction at 0.29, whereas we found that LOC was related to job satisfaction at 0.33. Hurtz and Donovan (2000) found in their meta-analysis that emotional stability was related to task performance at 0.14, whereas we found that LOC was related to task performance at 0.17. Finally, Judge and Illies (2002) found in their meta-analysis that emotional stability was related to self-efficacy at 0.35, whereas we found that LOC was related to self-efficacy at 0.28. Overall, then, it appears that Bono and Judge's (2003) assertion that the collective of core self-evaluation traits represents a broader construct of emotional stability has a solid empirical, as well as theoretical, foundation.

LOC also demonstrates comparable predictive power compared to the Big Five personality traits. For instance, internal LOC has a corrected correlation of 0.17 with task performance. Hurtz and Donovan's (2000) meta-analysis illustrated that none of the Big Five traits exceeds this predictive power. Also, LOC has a corrected correlation of 0.33 with job satisfaction, whereas Judge et al.'s (2002) meta-analysis showed that none of the Big Five traits exceeds this predictive power. Further, LOC is more predictive of self-efficacy than openness to experience, agreeableness, or conscientiousness (cf. Judge & Illies, 2002). Overall, it seems that LOC is a personality trait that has at least the same, if not greater, predictive power for some commonly examined work outcomes as the Big Five personality traits. Therefore, in addition to paying more attention to LOC as an individual trait and as a constituent component of core self-evaluation, we suggest researchers to integrate LOC into the Big Five personality research, thereby enhancing the overall usefulness of the Big Five taxonomy.

Future research

While LOC has been previously examined as an antecedent of task performance, we observe that scant attention has been given to other dimensions of job performance. Welbourne, Johnson, and Erez (1998) suggest that besides core task performance, employees should also be evaluated on their roles as organizational citizens, team-players, innovators, and careerists. For instance, Blau (1993) found that LOC was related to initiative performance (a type of citizenship behavior). Phares (1976) also suggests that internal LOC may be related to more helping behaviors in social situations. However, LOC may also be negatively related to compliance (Avtgis, 1998; Phares, 1976), another type of citizenship behavior. Thus, LOC may be differentially related to other aspects of job performance; more research is needed to explore such under-examined relationships.

We present a rather optimistic view of the role of LOC at work. However, in order to complete our understanding of this construct, future research also needs to examine the circumstances where LOC may have a *negative* impact at work. For instance, internals may be more stubborn and harder to influence. In fact, Avtgis (1998) found in a meta-analysis that internal LOC was negatively associated with susceptibility to persuasion. Further, when one insists upon attempting to control situations that cannot be controlled, the resulting psychological conflict can bring negative attitudinal or behavioral outcomes (Burger, 1989). Therefore, another promising and interesting research avenue is to examine the circumstances under which internal LOC may be a burden to employees' proper functioning in organizations.

Finally, we observe that the variability in LOC-outcome relationships was not satisfactorily explained by the moderators that we examined (sample characteristics and research design factors). Therefore, future research needs to examine other moderators of a more substantive nature. In particular, we urge researchers to pay attention to how ethnic and cultural group membership may moderate the influence of LOC on individuals at work (Bruce & Thornton, 2004). For instance, ethnic minority membership may moderate the relationship between LOC and career success because

minority employees are generally less powerful (Ragins, 1997), which may negatively bias their evaluations of the outcome expectancy.

Cultural membership may also be a potential moderator. For instance, organizational cultures may affect the perceived permissibility of asserting control in the work environment. The person-organizational fit theory (e.g., Judge & Cable, 1997) would suggest that employees with an internal locus may function better and have more favorable attitudes when they are working in cultures that emphasize attributes consistent with an internal locus (e.g., an aggressive culture). On the contrary, cultures that are inconsistent with an internal locus (e.g., an indecisive culture) may de-motivate or inhibit internals from cognitively or behaviorally maintaining control, weakening the relationships between LOC and outcomes.

Besides organizational culture, national culture may also play a moderating role. For instance, Skaff and Gardiner (2003) note that cultures may influence people's emphasis on primary versus secondary control. Primary control involves exerting changes in the environment whereas secondary control involves making changes to the individuals themselves as a reaction to the environment. People in western countries may likely hold a belief in primary control whereas those in the eastern countries may be inclined toward secondary control (Weisz, Rothbaum, & Blackburn, 1984). This distinction also supports researchers' assertions that, even if cultures do not directly influence people's beliefs of control, they should still influence how control is manifested (Spector et al., 2002). This distinction between primary and secondary control may be useful for furthering our understanding of the role of LOC at work.

Practical implications

One major practical implication of this study is that a variety of employee attitudes (e.g., job satisfaction, commitment) and behaviors (e.g., job performance, attendance) may be related to employees' LOC. As such, managerial and leadership effectiveness may be improved by understanding the nature and potential power of subordinates' control beliefs. Such control beliefs may be identified through personality surveys or even perhaps inferred from daily interactions. Further, because a lack of internal LOC appears to be associated with negative work attitudes and behaviors as illustrated, managers may want to pay special attention to those employees with an external locus. In fact, managers should realize that they may still be able to promote positive attitudes and behaviors among these employees by demonstrating that *indirect* control is feasible. This, for example, can be achieved through cultivating interpersonal relationships (e.g., close mentorship, group cohesiveness) such that employees with an external locus may believe that their trusted colleagues can help them maintain control at work. Finally, even though our analysis of bi-variate correlations does not allow the inference of causation, they may still have therapeutic implications. Namely, enhancing clients' perceived control over their lives may be an important way to substantially improve their well-being or happiness, even if they do not necessarily have the actual control (Gatchel, 1980). This therapeutic implication is timely and important—Twenge, Zhang, and Charles (2004) found in their meta-analysis that people increasingly believe that their lives are controlled by outside forces.

Limitations

The interpretation of the current meta-analytical results should take the following limitations into consideration. First, we observed that various effect sizes were associated with significant Q statistics. Because of the limited number of studies cumulated and limited relevant information available in the original studies, we were unable to test for moderators of these relationships. Therefore, future research

may need to further address this variability. Second, most of the variables examined were self-reported in the original studies. Thus, the relationships between LOC and these variables might have been affected by common method bias. However, as Fried and Ferris (1987) review indicates, self-reported variables demonstrate similar relationships with other-reported variables across multiple studies. In fact, Fried and Ferris (1987) conclude that the problem of using self-reported data to examine work perceptions may not be as serious as some researchers suggest. Further, we demonstrate that LOC has significant relationships with objective measures of task performance, attendance, and health. This helps minimize the concern that our findings may simply be an artifact of common method variance. Finally, the self-reported nature of data also did not allow us to infer causation in this study. Longitudinal studies are helpful in this regard.

Conclusion

Even though the critical role of the personality trait of LOC at work has been previously suggested (Spector, 1982), the current study is the first to demonstrate empirically that LOC is related to a broad range of work outcomes. In particular, internal LOC is associated with a variety of positive outcomes via at least three mediating processes. Overall, it appears that the personality trait of LOC provides a useful theoretical perspective to enhance our explanation and prediction of employees' workplace attitudes and behaviors. We hope that this study provides a springboard for more research examining the roles of LOC within the organizational sciences.

Author biographies

Thomas Ng received his PhD from the University of Georgia and is currently an Assistant Professor at the University of Hong Kong. His research interests include job mobility, career success, organizational and occupational commitment, and personality at work.

Kelly Sorensen is currently a doctoral candidate at the University of Georgia. Her research interests include organizational justice, measurement equivalence and invariance, training and development, and personality.

Lillian Eby is an Associate Professor of Psychology at the University of Georgia. Her research interests include career theory, organizational mentoring, and work and family issues.

References¹

- *Abel, B. J., & Hayslip, B. (2001). Locus of control and attitudes toward work and retirement. *Journal of Psychology*, 120, 479–488.
- Adler, A. (1930). Individual psychology. In C. Murchinson (Ed.), *Psychologies of 1930*. Worcester, MA: Clark University Press.

¹References marked with an asterisk were included in the meta-analysis.

- Ajzen, L., & Fishbein, M. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- *Allen, T. D., Poteet, M. L., Russell, J. E. A., & Dobbins, G. H. (1997). A field study of factors related to supervisors' willingness to mentor others. *Journal of Vocational Behavior*, 50, 1–22.
- *Al-Mashaan, O. S. (2001). Job stress and job satisfaction and their relation to neuroticism, type A behavior, and locus of control among Kuwaiti personnel. *Psychological Reports*, 88, 1145–1152.
- *Anderson, C. R., Hellriegel, D., & Slocum, J. W. (1977). Managerial response to environmentally induced stress. *Academy of Management Journal*, 20, 260–272.
- Anderson, C. R., & Schneier, C. E. (1978). Locus of control, leader behavior and leader performance among management students. *Academy of Management Journal*, 21, 690–698.
- *Andrews, M. C., & Kacmar, K. M. (2001). Discriminating among organizational politics, justice, and support. *Journal of Organizational Behavior*, 22, 347–366.
- Andriessen, J. H. T. H. (1972). Internal or external locus of control. *Nederlands Tijdschrift voor de Psychologie*, 27, 173–197.
- *Armstrong-Stassen, M., & Cameron, S. J. (2003). Dimensions of control and nurses reactions to hospital amalgamation. *International Journal of Sociology and Social Policy*, 23, 104–128.
- *Arnold, H. J. (1985). Task performance, perceived competence, and attributed causes of performance as determinants of intrinsic motivation. *Academy of Management Journal*, 28, 875–888.
- *Arsenault, A., Dolan, S. L., & Van Ameringen, M. R. (1991). Stress and mental strain in hospital work: Exploring the relationship beyond personality. *Journal of Organizational Behavior*, 12, 483–493.
- *Aryee, S., Chay, Y. W., & Chew, J. (1996). An investigation of the willingness of managerial employees to accept an expatriate assignment. *Journal of Organizational Behavior*, 17, 267–283.
- *Ash, C., & Huebner, E. S. (2001). Environmental events and life satisfaction reports of adolescents: A test of cognitive mediation. *School Psychology International*, 22, 320–336.
- Averill, J. (1973). Person control over aversive stimuli and its relationship to stress. *Psychological Bulletin*, 80, 286–303.
- Avtgis, T. A. (1998). Locus of control and persuasion, social influence, and conformity: A meta-analytic review. *Psychological Reports*, 83, 899–903.
- *Banai, M., Reisel, W. D., & Probst, T. M. (2004). A managerial and personal control model: Predictions of work alienation and organizational commitment in Hungary. *Journal of International Management*, 10, 375–392.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- *Batlis, N. C. (1980). Job involvement and locus of control as moderators of role-perception/individual-outcome relationships. *Psychological Reports*, 46, 111–119.
- Becker, G. (1964). *Human capital: A theoretical and empirical analysis with special reference to education*. New York: Columbia University Press.
- Bennassi, V. A., Sweeney, P. D., & Dufour, C. L. (1988). Is there a relationship between locus of control and depression. *Journal of Abnormal Psychology*, 97, 357–367.
- *Berhman, D. N., & Perreault, W. D. (1984). A role stress model of the performance and satisfaction of industrial salespersons. *Journal of Marketing*, 48, 9–21.
- *Berhman, D. N., Bigoness, W. J., & Perreault, W. D. (1981). Sources of job related ambiguity and their consequences upon salespersons' job satisfaction and performance. *Management Science*, 27, 1246–1260.
- *Bigoness, W. J., Keef, K. M., & duBose, P. B. (1988). Perceived goal-difficulty, locus of control, and performance ratings. *Psychological Reports*, 88, 475–482.
- *Binnie, D. G. (1985). *The relationship of expectancy work motivation, selected situational variables and locus of control to teacher job satisfaction*. Unpublished dissertation. University of South Florida.
- *Blankstein, K. R., & Egner, K. (1977). Relationship of the locus of control construct to the self-control of heart rate. *Journal of General Psychology*, 97, 291–306.
- *Blau, G. (1985). The measurement and prediction of career commitment. *Journal of Occupational and Organizational Psychology*, 58, 277–288.
- *Blau, G. (1987). Locus of control as a potential moderator of the turnover process. *Journal of Occupational Psychology*, 60, 21–29.
- *Blau, G. (1993). Testing the relationship of locus of control to different performance dimensions. *Journal of Occupational and Organizational Psychology*, 66, 125–138.
- *Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology*, 88, 1057–1067.

- Bono, J. E., & Judge, T. A. (2003). Core self-evaluations: A review of the trait and its role in job satisfaction and job performance. *European Journal of Personality*, 17, 5–18.
- *Boone, C., De Brabander, B., & Van Witteloostuijn, A. (1996). CEO locus of control and small firm performance: An integrative framework and empirical test. *Journal of Management Studies*, 33, 66–699.
- *Bretz, R. D., & Judge, T. A. (1994). The role of human resource systems in job applicant decision processes. *Journal of Management*, 20, 531–551.
- *Broedling, L. A. (1975). Relationship of internal-external control to work motivation and performance in an expectancy model. *Journal of Applied Psychology*, 60, 65–70.
- *Brookings, J. B., Bolton, B., Brown, C. E., & McEvoy, A. (1985). Self-reported job burnout among female human service professionals. *Journal of Occupational Behavior*, 6, 143–150.
- *Brousseau, K. R., & Mallinger, M. A. (1981). Internal-external locus of control, perceived occupational stress, and cardiovascular health. *Journal of Occupational Behavior*, 2, 65–71.
- *Brown, J., Cooper, G., & Kirkcaldy, B. (1996). Occupational stress among senior police officers. *British Journal of Psychology*, 78, 31–41.
- *Brown, J., Mulhern, G., & Joseph, S. (2002). Incident-related stressors, locus of control, coping, and psychological distress among firefighters in Northern Ireland. *Journal of Traumatic Stress*, 15, 161–168.
- Brown, S. P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin*, 120, 235–255.
- Bruce, M. A., & Thornton, M. C. (2004). It's my world? Exploring Black and White perceptions of personal control. *The Sociological Quarterly*, 45, 597–612.
- *Bruhn, J. G., Bunce, H. L., & Flody, C. S. (1980). Correlates of job satisfaction among pediatric nurse practitioners. *Psychological Reports*, 46, 807–814.
- Burger, J. M. (1989). Negative reactions to increases in personal control. *Journal of Personality and Social Psychology*, 56, 246–256.
- Butterfield, E. C. (1964). Locus of control, test anxiety, reaction to frustration, and achievement attitudes. *Journal of Personality*, 32, 298–311.
- Caligiuri, P. M. (2000). The big five personality characteristics as predictors of expatriate's desire to terminate the assignment and supervisor-rated performance. *Personnel Psychology*, 53, 67–88.
- *Carpenter, M. A., & Golden, B. R. (1997). Perceived managerial discretion: A study of cause and effect. *Strategic Management Journal*, 18, 187–206.
- *Casas, F., Gonzalez, M., Figuer, C., & Coenders, G. (2004). Subjective well-being, values and goal achievement: The case of planned versus by chance searches on the internet. *Social Indicator Research*, 66, 123–141.
- *Cassidy, S., & Eachus, P. (2000). Learning style, academic belief systems, self-report student proficiency and academic achievement in higher education. *Educational Psychology*, 20, 307–316.
- *Chan, D. W. (1989). Dimensionality and adjustment correlates of locus of control among Hong Kong Chinese. *Journal of Personality Assessment*, 53, 145–160.
- *Cheng, Y. C. (1994). Locus of control as an indicator of Hong Kong teachers' job attitudes and perceptions of organizational characteristics. *Journal of Educational Research*, 87, 180–188.
- Chung, Y. Y., & Ding, C. G. (2002). Development of the sales locus of control scale. *Journal of Occupational and Organizational Psychology*, 75, 233–245.
- *Colarelli, S. M., & Bishop, R. C. (1990). Career commitment: Functions, correlates, and management. *Group and Organization Studies*, 15, 158–176.
- *Coleman, D. F., Irving, G. P., Cooper, C. L. (1999). Another look at the locus of control-organizational commitment relationship: It depends on the form of commitment. *Journal of Organizational Behavior*, 20, 995–1001.
- *Cooper, C. L., & Williams, J. (1991). A validation of the OSI on a blue-collar sample. *Stress Medicine*, 7, 109–112.
- *Crohan, S. E., Antonucci, T. C., Adelmann, P. K., & Coleman, L. M. (1989). Job characteristics and well-being at midlife. *Psychology of Women Quarterly*, 13, 223–235.
- *Cummins, R. C. (1989). Locus of control and social relationship: Clarifiers of the relationship between job stress and job satisfaction. *Journal of Applied Psychology*, 74, 772–788.
- *Dailey, R. C. (1979). Locus of control, task attributes, and job performance. *Perceptual and Motor Skills*, 49, 489–490.
- *Dailey, R. C., & Morgan, C. P. (1978). Personal characteristics and job involvement as antecedents of boundary spanning behavior: A path analysis. *Journal of Management Studies*, 15, 330–339.
- *Daniels, K., & Guppy, A. (1997). Stressors, locus of control, and social support as consequences of affective psychological well-being. *Journal of Occupational Health Psychology*, 2, 156–174.

- De Brabander, B., Boone, B., & Gerits, P. (1992). Locus of control and cerebral asymmetry. *Perceptual and Motor Skills*, 75, 131–143.
- *De Rijk, A. E., Le Blanc, P. M., Schaufeli, W. B., & De Jonge, J. (1998). Active coping and need for control as moderators of the job demand-control model: Effects on burnout. *Journal of Occupational and Organizational Psychology*, 71, 1–18.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 39–80). New York: Academic Press.
- *DiMatteo, M. R., Shugars, D. A., & Hays, R. D. (1993). Occupational stress, life stress and mental health among dentists. *Journal of Occupational and Organizational Psychology*, 66, 153–162.
- *Donnelly, D. P., Quirin, J. J., & O'Bryan, D. (2003). Attitudes toward dysfunctional audit behavior: The effects of locus of control, organizational commitment, and position. *Journal of Applied Business Research*, 19, 95–108.
- *Dulebohn, J. H. (2002). An investigation of the determinants of investment risk behavior in employer-sponsored retirement plans. *Journal of Management*, 28, 3–26.
- *Erbin-Roesemann, M. A., & Simms, L. M. (1997). Work locus of control: The intrinsic factor behind empowerment and work excitement. *Nursing Economics*, 15, 183–190.
- *Erez, A., Johnson, D. E., & Judge, T. A. (1995). Self-deception as a mediator of the relationship between dispositions and subjective well-being. *Personality and Individual Differences*, 19, 597–612.
- *Erez, A., & Judge, T. A. (2001). Relationships of core self-evaluation to goal setting, motivation, and performance. *Journal of Applied Psychology*, 86, 1270–1279.
- *Evers, A., Frese, M., & Cooper, C. L. (2000). Revisions and further developments of the occupational stress indicator: LISREL results from four Dutch studies. *Journal of Occupational and Organizational Psychology*, 73, 221–140.
- *Fang, M. (1997). *A study of work motivation: The influence of organizational variables and individual characteristics on work motivation and outcomes*. Unpublished dissertation. University of Michigan.
- *Farmer, S. M., Maslyn, J. M., Fedor, D. B., & Goodman, J. S. (1997). Putting upward influence strategies in context. *Journal of Organizational Behavior*, 18, 17–42.
- *Feldman, P. J., & Steptoe, A. (2003). Psychosocial and socioeconomic factors associated with glycated hemoglobin in nondiabetic middle-aged men and women. *Health Psychology*, 22, 398–405.
- Findley, M., & Cooper, H. (1983). Locus of control and academic achievement: A literature review. *Journal of Personality and Social Psychology*, 44, 419–427.
- *Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82, 221–234.
- *Firth, L., Mellor, D. J., Moore, K. A., & Loquet, C. (2004). How can managers reduce employee intention to quit. *Journal of Managerial Psychology*, 19, 170–187.
- *Forte, A. (2004). Antecedents of managers' moral reasoning. *Journal of Business Ethics*, 51, 315–347.
- *Fortinatos-Ventouratos, R., & Cooper, C. L. (1998). Social class differences and occupational stress. *International Journal of Stress Management*, 5, 211–222.
- *Freedman, S. M., & Phillips, J. S. (1985). The effects of situational performance constraints on intrinsic motivation and satisfaction: The role of perceived competence and self-determination. *Organizational Behavior and Human Decision Processes*, 35, 397–416.
- Fried, Y., & Ferris, G. R. (1987). The validity of job characteristic model: A review and meta-analysis. *Personnel Psychology*, 40, 287–322.
- *Fried, Y., Tiegs, R. B., Naughton, T. J., & Ashforth, B. E. (1996). Managers' reactions to a corporate acquisition: A test of an integrative model. *Journal of Occupational Behavior*, 17, 401–427.
- *Frost, T. F., & Wilson, H. G. (1983). Effects of locus of control and A-B personality type on job satisfaction within the health care field. *Psychological Reports*, 53, 399–405.
- *Fulgate, M., Kinicki, A. J., & Scheck, C. L. (2002). Coping with an organizational merger over four stages. *Personnel Psychology*, 55, 905–928.
- *Furnham, A., & Hughes, K. (1999). Individual difference correlates of nightwork and shift-work rotation. *Personality and Individual Differences*, 26, 941–959.
- *Fusilier, M. R., Ganster, D. C., & Mayes, B. T. (1987). Effects of social psychology, role stress, and locus of control on health. *Journal of Management*, 13, 517–528.
- *Gable, M., & Dangello, F. (1994). Locus of control, Machiavellianism, and managerial performance. *Journal of Psychology*, 128, 599–608.
- Ganster, D. C., & Fusilier, M. R. (1989). Control in the workplace. In C. L. Cooper, & I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 235–280). New York: Wiley.

- Gatchel, R. J. (1980). Perceived control: A review and evaluation of therapeutic implications. In A. Baum, & J. E. Singer (Eds.), *Advances in environmental psychology* (pp. 1–22). Hillsdale, NJ: Erlbaum.
- *George, J. M., Brief, A. P., & Webster, J. (1991) Organizational intended and unintended coping: The case of an incentive compensation plan. *Journal of Occupational Psychology*, 64, 193–205.
- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactionist approach. *Journal of Applied Psychology*, 86, 513–524.
- *Gianakos, I. (2002). Predictors of coping with work stress: The influences of sex, gender roles, social desirability, and locus of control. *Sex Roles*, 46, 149–158.
- *Giles, W. F. (1977). Volunteering for job enrichment: A test of expectancy theory predictions. *Personnel Psychology*, 30, 427–435.
- *Glazer, S., Stetz, T. A., & Izso, L. (2004). Effects of personality on subjective job stress: A cultural analysis. *Personality and Individual Differences*, 37, 645–658.
- *Godfred, L. D. (1991). *The effects of internal/external locus of control orientation on employee absenteeism behavior*. Unpublished manuscript. University of Toledo.
- *Goh, S. C., & Mealiea, L. W. (1984). Fear of success and its relationship to the job performance, tenure, and desired job outcomes of women. *Canadian Journal of Behavioral Science*, 16, 65–75.
- *Gomez, R. (1998). Locus of control and avoidant coping: Direct, interactional and mediational effects on maladjustment in adolescents. *Personality and Individual Differences*, 25, 325–334.
- *Gomez, R. (1997). Locus of control and Type A behavior pattern as predictors of coping styles among adolescents. *Personality and Individual Differences*, 23, 391–398.
- *Gordon, D. A. (1977). Children's beliefs in internal-external control and self-esteem as related to academic achievement. *Journal of Personality Assessment*, 41, 383–386.
- *Gould, S. (1979). Characteristics of career planners in upwardly mobile occupations. *Academy of Management Journal*, 22, 539–550.
- *Greenberger, D. B., Strasser, S., Cummings, L. L., & Dunham, R. B. (1989). The impact of personal control on performance and satisfaction. *Organizational Behavior and Human Decision Processes*, 43, 29–51.
- *Griffith, R. W., & Hom, P. W. (1988). Locus of control and delay of gratification as moderators of employee turnover. *Journal of Applied Social Psychology*, 18, 1318–1333.
- *Gueritault-Chalvin, V., Kalichman, S. C., Demi, A., & Peterson, J. L. (2000). Work-related stress and occupational burnout in AIDS caregivers: Test of a coping model with nurses providing AIDS care. *AIDS Care*, 12, 149–161.
- *Gupchup, G. V., & Wolfgang, A. P. (1997). A modified work locus of control scale: Preliminary investigation of reliability and validity in a sample of pharmacists. *Psychological Reports*, 81, 640–642.
- *Gustafson, S. B., & Mumford, M. D. (1995). Personal style and person-environment fit: A pattern approach. *Journal of Vocational Behavior*, 46, 163–188.
- Hackman, J., & Oldham, G. (1980). *Work redesign*. Reading: MA: Addison-Wesley.
- *Hamid, P. N., & Chan, W. T. (1998). Locus of control and occupational stress in Chinese professionals. *Psychological Reports*, 82, 75–79.
- *Hattrup, K., O'Connell, M. S., & Labrador, J. R. (2005). Incremental validity of locus of control after controlling for cognitive ability and conscientiousness. *Journal of Business and Psychology*, 19, 461–481.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando, FL: Academic Press.
- *Hirschfeld, R. R. (1996). *Evidence for the discriminant validity of conscientiousness and work orientation as principal components of global trait work motivation*. Unpublished dissertation. Auburn University.
- *Hirschfeld, R. R., & Field, H. S. (2000). Work centrality and work alienation: Distinct aspects of a general commitment to work. *Journal of Organizational Behavior*, 21, 789–800.
- *Hoffi-Hofstetter, H., & Mannheim, B. (1999). Managers' coping resources, perceived organizational patterns, and responses during organizational recovery from decline. *Journal of Organizational Behavior*, 20, 665–685.
- *Holder, J. C., & Vaux, A. (1998). African American professionals: Coping with occupational stress in predominantly white work environments. *Journal of Vocational Behavior*, 53, 315–333.
- *Hong, S., & Giannopoulos, E. (1994). The relationship of satisfaction with life to personality characteristics. *Journal of Psychology*, 128, 547–558.
- *Horner, K. L. (1996). Locus of control, neuroticism, and stressors: Combined influences on reported physical illnesses. *Personality and Individual Differences*, 21, 195–204.
- House, R. J., Shane, S. A., & Herold, D. M. (1996). Rumors of the death of dispositional research are vastly exaggerated. *Academy of Management Review*, 21, 203–224.

- *Howell, J. M., & Shea, C. M. (2001). Individual differences, environmental scanning, innovation framing, and champion behavior: Key predictors of project performance. *The Journal of Product Innovation Management*, 18, 15–27.
- Hunter, J. E., & Schmidt, H. L. (1990). *Methods of meta-analysis: Correcting for sources of error and bias in research findings*. Newbury Park, CA: Sage.
- Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: The Big Five revisited. *Journal of Applied Psychology*, 85, 869–879.
- *Irving, P. G., Coleman, D. F., & Cooper, C. L. (1997). Further assessment of a three-component model of occupational commitment: Generalizability and differences across occupations. *Journal of Applied Psychology*, 82, 444–452.
- *Ito, J. K., & Brotheridge, C. M. (2003). Resources, coping strategies, and emotional exhaustion: A conversation of resources perspective. *Journal of Vocational Behavior*, 63, 490–509.
- *Itzhaky, H., & Ribner, D. S. (1999). Gender, values and the workplace: Considerations for immigration acculturation. *International Social Work*, 42, 127–138.
- *Jain, V. K., Lall, R., McLaughlin, D. G., & Johnson, W. (1996). Effects of locus of control, occupational stress, and psychological distress on job satisfaction among nurses. *Psychological Reports*, 78, 1256–1285.
- *Janzen, J. M. (1982). *A study of the relationship of locus of control, age, and work experience variables used to discriminate individuals susceptible to industrial accidents in the sawmill industry*. Unpublished manuscript. University of San Francisco.
- *Johnson, M. (2004). Approaching the salutogenesis of sense of coherence: The role of 'active' self-esteem and coping. *British Journal of Health Psychology*, 9, 419–432.
- *Johnson, A. L., Luthans, F., & Hennessey, H. W. (1984). The role of locus of control in leader influence behavior. *Personnel Psychology*, 37, 61–75.
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86, 80–92.
- *Judge, T. A., Bono, J. E., & Locke, E. A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology*, 85, 237–249.
- Judge, T. A., & Cable, D. M. (1997). Applicant personality, organizational culture, and organization attraction. *Personnel Psychology*, 50, 359–394.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology*, 56, 303–331.
- Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-Factor Model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, 87, 530–541.
- Judge, T. A., & Illies, R. (2002). Relationship of personality to performance motivation: A meta-analytical review. *Journal of Applied Psychology*, 87, 797–807.
- *Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83, 17–34.
- *Judge, T. A., Thoresen, C. J., Pucik, V., & Welbourne, T. M. (1999). Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology*, 84, 107–122.
- Kahle, L. R. (1980). Stimulus condition self-selection by males in the interaction of locus of control and skill-chance situations. *Journal of Personality and Social Psychology*, 38, 50–56.
- Kalechstein, A. D., & Nowicki, S. (1997). A meta-analytic examination of the relationship between control expectancies and academic achievement: An 11-year follow-up to Findley and Cooper. *Genetic, Social and General Psychology Monographs*, 123, 29–56.
- Kapoor, A., Ansari, M. A., & Shukla, R. (1986). Upward influence tactics as a function of locus of control and organizational context. *Psychological Studies*, 31, 190–199.
- *Kasperson, C. J. (1982). Locus of control and job dissatisfaction. *Psychological Reports*, 50, 823–826.
- *Keenan, A., & McBain, G. D. (1979). Effects of Type A behavior, intolerance of ambiguity, and locus of control on the relationship between role stress and work-related outcomes. *Journal of Occupational Psychology*, 52, 277–285.
- *Keinan, G., Friedland, N. J., Yizhaky, J., & Moran, A. (1981). Biographical, physiological, and personality variables as predictors of performance under sickness-inducing motion. *Journal of Applied Psychology*, 66, 233–241.
- *Keller, R. T. (1983). Predicting absenteeism from prior absenteeism, attitudinal factors, and non-attitudinal factors. *Journal of Applied Psychology*, 68, 536–540.

- *Kimmons, G., & Greenhaus, J. H. (1976). Relationship between locus of control and reactions of employees to work characteristics. *Psychological Reports*, 39, 815–820.
- King, Z. (2004). Career self-management: Its nature, causes and consequences. *Journal of Vocational Behavior*, 65, 112–133.
- *Kinicki, A. J., & Vecchio, R. P. (1994). Influences on the quality of supervisors-subordinate relations: The role of time-pressure, organizational commitment, and locus of control. *Journal of Organizational Behavior*, 15, 75–82.
- *Kircaldy, B. D., & Cooper, C. L. (1992). Cross cultural differences in occupational stress among British and German managers. *Work and Stress*, 6, 177–190.
- *Kircaldy, B. D., & Siefen, G. (2002). The occupational stress and health outcome profiles of clinical directors in child and adolescent psychiatry. *Stress and Health*, 18, 161–172.
- *Klein, H. A., Tatone, C. L., & Lindsay, N. B. (1989) Correlates of life satisfaction among military wives. *Journal of Psychology*, 123, 465–475.
- *Klonowicz, T. (2001). Discontented people: Reactivity and locus of control as determinants of subjective well-being. *European Journal of Personality*, 15, 29–47.
- *Knoop, R. (1981). Locus of control as moderator between job characteristics and job attitudes. *Psychological Reports*, 48, 519–525.
- *Koberg, C. S., Boss, R. W., Senjem, J. C., & Goodman, E. A. (1999). Antecedents and outcomes of empowerment: Empirical evidence from the health care industry. *Group and Organization Management*, 24, 71–91.
- *Koeske, G. F., & Kirk, S. A. (1995). Direct and buffering effects of internal locus of control among mental health professionals. *Journal of Social Service Research*, 20, 1–28.
- Kristof-Brown, A., Barrick, M. R., & Franke, M. (2002). Applicant impression management: Dispositional influences and consequences for recruiter perceptions of fit and similarity. *Journal of Management*, 28, 27–46.
- Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action vs state orientation. In J. Kuhl, & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 101–128). New York: Springer-Verlag.
- *Kyriacou, C., & Sutcliffe, J. (1979). A note on teacher stress and locus of control. *Journal of Occupational Psychology*, 52, 227–228.
- *Lam, S. S. K., & Schaubroeck, J. (2000). The role of locus of control in reactions to being promoted and to being passed over: A quasi experiment. *Academy of Management Journal*, 43, 66–78.
- *Landau, R. (1995). Locus of control and socioeconomic status: Does internal locus of control reflect real resources and opportunities or personal coping abilities? *Social Science Medical*, 41, 1499–1505.
- *Landsbergis, P. A., Schnall, P. L., Deitz, D., Friedman, R., & Pickering, T. (1992). The patterning of psychological attributes and distress by "job strain" and social support in a sample of working men. *Journal of Behavioral Medicine*, 15, 379–405.
- *Lang, F. R., & Heckhausen, J. (2001). Perceived control over development and subjective well-being: Differential benefits across adulthood. *Journal of Personality and Social Psychology*, 81, 509–523.
- Langer, E. J. (1983). Introduction: The psychology of control. In E. J. Langer (Ed.), *The psychology of control* (pp. 13–21). Beverly Hills, CA: Sage.
- *Lau, C., & Woodman, R. W. (1995). Understanding organizational change: A schematic perspective. *Academy of Management Journal*, 38, 537–554.
- *Lee, D. Y., & Tsang, E. W. K. (2001). The effects of entrepreneurial personality, background and networking activities on venture growth. *Journal of Management Studies*, 38, 583–602.
- *Lee, H., Song, R., Cho, Y. S., Lee, G. Z., & Daly, B. (2003). A comprehensive model for predicting burnout in Korea nurses. *Nursing and Health Care Management Issues*, 44, 534–545.
- Lefcourt, H. M. (1972). Recent development in the study of locus of control. In B. A. Maher (Ed.), *Process in experimental personality research* (Vol. 6, pp. 1–39). New York: Academic Press.
- Lefcourt, H. M. (1976). *Locus of control: Current trends in theory and research*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lefcourt, H. M. (1985). Locus of control for affiliation and behavior in social interactions. *Journal of Personality and Social Psychology*, 48, 755–759.
- Lefcourt, H. M. (1992). Durability and impact of the locus of control construct. *Psychological Bulletin*, 112, 411–414.
- *Lengua, L. J., & Stormshak, E. A. (2000). Gender, gender roles, and personality: Gender differences in the prediction of coping and psychological symptoms. *Sex Roles*, 43, 787–820.
- *Leonard, P. J. (1998). *Locus of control, self-reported health risks, and biomedical measurements among public school personnel*. Unpublished dissertation. University of Southern Mississippi.

- *Leone, C., & Burns, J. (2000). The measurement of locus of control: Assessing more than meets the eye? *Journal of Psychology, 134*, 63–76.
- *Leung, T., & Siu, O., & Spector, P. E. (2000). Faculty stressors, job satisfaction, and psychological distress among university teachers in Hong Kong: The role of locus of control. *International Journal of Stress Management, 7*, 121–138.
- Levenson, H. (1974). Activism and powerful others: Distinction within the concept of internal-external control. *Journal of Personality Assessment, 38*, 377–383.
- Liden, R. C., & Arad, S. (1996). A power perspective of empowerment and work groups: Implications for human resource management research. *Research in Personnel and Human Resource Management, 14*, 205–251.
- *Lied, T. R., & Pritchard, R. D. (1976). Relationships between personality variables and components of the expectancy-valence model. *Journal of Applied Psychology, 61*, 463–467.
- *Lonergan, J. M., & Maher, K. J. (2000). The relationship between job characteristics and workplace procrastination as moderated by locus of control. *Journal of Social Behavior and Personality, 15*, 213–224.
- *Lu, L., Kao, S., Cooper, C. L., & Spector, P. E. (2000). Managerial stress, locus of control, and job strain in Taiwan and UK: A comparative study. *International Journal of Stress Management, 7*, 209–226.
- *Lunenburg, F. C., & Cadavid, V. (1992). Locus of control, pupil control ideology, and dimensions of teacher burnout. *Journal of Instructional Psychology, 19*, 13–22.
- *Lyne, K. D., Barrett, P. T., Williams, C., & Coaley, K. (2000). A psychometric evaluation of the Occupational Stress Indicator. *Journal of Occupational and Organizational Psychology, 73*, 195–220.
- *Majumder, R. K., MacDonald, A. P., & Greever, K. B. (1977). A study of rehabilitation counselors: Locus of control and attitudes towards the poor. *Journal of Counseling Psychology, 24*, 137–141.
- *Mallinckrodt, B. (1990). Satisfaction with a new job after unemployment: Consequences of job loss for older professionals. *Journal of Counseling Psychology, 37*, 149–152.
- *Mallinckrodt, B., & Bennett, J. (1992). Social support and the impact of job loss in dislocated blue-collar workers. *Journal of Counseling Psychology, 39*, 482–489.
- Martin, R., Thomas, G., Charles, K., Epitropaki, O., & McNamara, R. (2005). The role of leader-member exchanges in mediating the relationship between locus of control and work reactions. *Journal of Occupational and Organizational Psychology, 78*, 141–147.
- *Martinez Garcia, M. F., Ramirez, M. G., & Jariego, I. M. (2002). Social support and locus of control as predictors of psychological well-being in Moroccan and Peruvian immigrant women in Spain. *International Journal of Intercultural Relations, 26*, 287–310.
- *Matsui, T., Matsui, K., & Ohnishi, R. (1990). Mechanism underlying math self-efficacy learning of college students. *Journal of Vocational Behavior, 37*, 225–238.
- *McFarlane, A. H., Norman, G. R., Streiner, D. L., & Roy, R. G. (1983). The process of social stress: Stable, reciprocal, and mediating relationships. *Journal of Health and Social Behavior, 24*, 160–173.
- *McIntire, S. A., & Levine, E. L. (1991). Combing personality variables and goals to predict performance. *Journal of Vocational Behavior, 38*, 288–301.
- Miller, S. M. (1980). Why having control reduces stress: If I can stop the roller coaster, I don't want to get off. In J. Garber, & M. E. P. Seligman (Eds.), *Human helplessness: Theory and applications* (pp. 71–95). San Diego, CA: Academic Press.
- *Mitchell, T. R., Smyser, C. M., & Weed, S. E. (1975). Locus of control: Supervision and work satisfaction. *Academy of Management Journal, 18*, 623–631.
- *Moorman, R. H., & Podsakoff, P. M. (1992). A meta-analytic review and empirical test of the potential confounding effects of social desirability response sets in organizational behavior research. *Journal of Occupational and Organizational Psychology, 65*, 131–149.
- Mount, M. K., Barrick, M. R., & Ryan, A. M. (2003). Research themes for the future. In M. R. Barrick, & A. M. Ryan (Eds.), *Personality and work: Reconsidering the role of personality in organizations* (pp. 326–344). San Francisco, CA: Jossey-Bass.
- Mudrack, P. E. (1990). Machiavellianism and locus of control: A meta-analytic review. *Journal of Social Psychology, 130*, 125–126.
- *Muhonen, T., & Tokelson, E. (2004). Work locus of control and its relationship to health and job satisfaction from a job satisfaction from a gender perspective. *Stress and Health, 20*, 21–28.
- *Nelson, A., Cooper, G. L., & Jackson, P. R. (1995). Uncertainty amidst change: The impact of privatization on employee job satisfaction and well-being. *Journal of Occupational and Organizational Psychology, 68*, 57–71.
- *Newton, T. J., & Keenan, A. (1990). Consequences of changing employers amongst young engineers. *Journal of Occupational Psychology, 63*, 113–127.

- *Nonis, S. A., & Sager, J. K. (2003). Coping strategy profiles used by salespeople: Their relationships with personal characteristics and work outcomes. *Journal of Personal Selling and Sales Management*, 23, 139–150.
- Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology*, 58, 367–408.
- Noe, R. A. (1988). Women and mentoring: A review and research agenda. *Academy of Management Review*, 13, 65–78.
- *Noe, R. A., & Schmitt, N. (1986). The influence of trainee attitudes on training effectiveness: Test of a model. *Personnel Psychology*, 39, 497–523.
- *Noe, R. A., & Steffy, B. D. (1987). The influence of individual characteristics and assessment center evaluation on career exploration behavior and job involvement. *Journal of Vocational Behavior*, 30, 187–202.
- *Noor, N. M. (1995). Job-role quality and women's psychological well-being: Locus of control and social support as moderators. *Journal of Community and Applied Social Psychology*, 5, 259–272.
- *Noor, N. M. (2002). Work-family conflict, locus of control, and women's well-being: Tests of alternative pathways. *Journal of Social Psychology*, 142, 645–662.
- *Norris, D. R., & Niebuhr, R. E. (1984). Attributional influences on the job performance-job satisfaction relationship. *Academy of Management Journal*, 27, 424–431.
- *O'Connor, W. E., & Morrison, T. G. (2001). A comparison of situational and dispositional predictors of perceptions of organizational politics. *Journal of Psychology*, 135, 301–312.
- *Ofari, R., & Charlton, J. P. (2002). A path model of factors influencing the academic performance of nursing students. *Journal of Advanced Nursing*, 38, 507–515.
- *Organ, D. W., & Greene, C. N. (1974). The perceived purposefulness of job behavior: Antecedents and consequences. *Academy of Management Journal*, 17, 69–78.
- *Parasuraman, S., & Alutto, J. (1984). Sources and outcomes of stress in organizational settings: Toward the development of a structural model. *Academy of Management Journal*, 27, 330–350.
- Parker, L. E. (1993). When to fix it and when to leave: Relationships among perceived control, self-efficacy, dissent, and exit. *Journal of Applied Psychology*, 78, 949–959.
- *Parkes, K. R. (1991). Locus of control as moderator: An explanation for additive versus interactive findings in the demand-discretion model of work stress? *British Journal of Psychology*, 82, 291–312.
- *Parkes, K. R., & Razavi, T. D. B. (2004). Personality and attitudinal variables as predictors of voluntary union membership. *Personality and Individual Differences*, 37, 333–347.
- Paulausk, D. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology*, 44, 1253–1265.
- *Payne, R., & Hartley, J. (1987). A test of a model for explaining the affective experience of unemployed men. *Journal of Occupational Psychology*, 60, 31–47.
- *Peacock, E. J., Wong, P. T. P. (1996). Anticipatory stress: The relationship of locus of control, optimism, and control appraisals to coping. *Journal of Research in Personality*, 30, 204–222.
- Pettersen, N. (1985). Specific versus generalized locus of control scales related to job satisfaction. *Psychological Reports*, 56, 60–62.
- Phares, E. J. (1965). Internal-external control as a determinant of amount of social influence exerted. *Journal of Personality and Social Psychology*, 2, 642–647.
- Phares, E. J. (1976). *Locus of control in personality*. Morristown, NJ: General Learning Press.
- *Phillips, J. M., & Bedeian, A. G. (1994). Leader-follower exchange quality: The role of personal and interpersonal attributes. *Academy of Management Journal*, 37, 990–1001.
- *Phillips, J. M., & Gully, S. M. (1994). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, 82, 792–802.
- *Powell, A., & Vega, M. (1972). Correlates of adult locus of control. *Psychological Reports*, 30, 455–460.
- *Premeaux, S. F., & Bedeian, A. G. (2003). Breaking the silence: The moderating effects of self-monitoring in predicting speaking up in the workplace. *Journal of Management Studies*, 40, 1537–1562.
- Presson, P. K., & Benassi, V. A. (1996). Locus of control orientation and depressive symptomatology: A meta-analysis. *Journal of Social Behavior and Personality*, 11, 201–212.
- Pryers, N. W., & DiStefano, M. K. (1971). Perceptions of leadership behavior, job satisfaction, and internal-external control across three nursing levels. *Nursing Review*, 20, 534–537.
- *Queen, L., & Freitag, C. B. (1978). A comparison of externality, anxiety, and life satisfaction in two aged populations. *Journal of Psychology*, 98, 71–74.
- Ragins, B. R. (1997). Diversified mentoring relationships: A power perspective. *Academy of Management Review*, 22, 482–521.

- *Rahim, M. A. (1997). Relationships of stress, locus of control, and social support to psychiatric symptoms and propensity to leave a job: A field study with managers. *Journal of Business and Psychology*, 12, 159–174.
- *Raja, U., Johns, G., & Ntalianis, F. (2004). The impact of personality on psychological contracts. *Academy of Management Journal*, 47, 350–367.
- *Ranchor, A. V., & Sanderman, R. (1991). The role of personality and socio-economic status in the stress-illness relation: A longitudinal study. *European Journal of Personality*, 5, 93–108.
- *Rasch, R. H., & Tosi, H. L. (1992). Factors affecting software developers' performance: An integrated approach. *MIS Quarterly*, 16, 395–413.
- *Reitz, H. J., & Jewell, L. N. (1979). Sex, locus of control, and job involvement: A six-country comparison. *Academy of Management Journal*, 22, 72–80.
- *Richford, M. L., & Fortune, J. C. (1985). The secondary principal's job satisfaction in relation to two personality constructs. *Education*, 105, 17–19.
- *Riipinen, M. (1994). Extrinsic occupational needs and the relationship between need for achievement and locus of control. *Journal of Psychology*, 128, 577–587.
- Ringer, R. C., & Boss, R. W. (2000). Hospital professionals' use of upward influence tactics. *Journal of Managerial Issues*, 12, 92–108.
- *Roberts, J. A., Lapidus, R. S., & Chonko, L. B. (1997). Salespeople and stress: The moderating role of locus of control on work stressors and felt stress. *Journal of Marketing Theory and Practice*, 5, 93–108.
- *Rodriguez, I. R., Bravo, M. J., & Peiro, J. M. (2001). The demands-control-support model, locus of control and job dissatisfaction: A longitudinal study. *Work and Stress*, 15, 97–114.
- *Roth, K. (1995). Managing international interdependence: CEO characteristics in a resource-based framework. *Academy of Management Journal*, 38, 200–231.
- *Roth, P. L., Hearp, C., & Switzer, F. S. (1999). The effect of method variance on relationships between the work ethic and individual difference variables. *Journal of Business and Psychology*, 14, 173–186.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, 609.
- *Rush, M. C., Schoel, W. A., & Barnard, S. M. (1995). Psychological resiliency in the public sector: Hardiness and pressure for change. *Journal of Vocational Behavior*, 46, 17–39.
- *Ryff, C. D. (1989). Happiness is everything, or is it? Exploration on the meaning of psychological well-being. *Journal of Applied Psychology*, 57, 1069–1081.
- *Sadowski, C. J. (1993). Cumulative evidence of the relationship between work tenure and generalized locus of control among teachers. *Education*, 114, 27–31.
- *Sadowski, C. J., Blackwell, M., & Willard, J. L. (1985). Locus of control and student teacher performance. *Education*, 105, 391–393.
- *Santangelo, S., & Lester, D. (1985). Correlates of job satisfaction of public school teachers: Moonlighting, locus of control, and stress. *Psychological Reports*, 56, 130.
- *Schaubroeck, J., Ganster, D. C., & Jones, J. R. (1998). Organization and occupation influences in the attraction-selection-attrition process. *Journal of Applied Psychology*, 83, 869–891.
- *Schaubroeck, J., Jones, J. R., & Xie, J. L. (2001). Individual differences in utilizing control to cope with job demands: Effects on susceptibility to infectious disease. *Journal of Applied Psychology*, 86, 265–278.
- *Schmieder, R. A. (1994). *Construct validity of worker control and assessment of an expanded job demands-control model*. Unpublished dissertation. Bowling Green State University.
- *Schmitt, N., & Bedeian, A. G. (1992). A comparison of LISREL and two-stage least squares analysis of a hypothesized life-job satisfaction reciprocal relationships. *Journal of Applied Psychology*, 67, 806–817.
- *Schmitt, N., Coyle, B. W., Rauschenberger, J., & White, J. K. (1979). Comparison of early retirees and non retirees. *Personnel Psychology*, 32, 327–340.
- *Schmitt, N., White, J. K., Coyle, B. W., & Rauschenberger, J. (1979). Retirement and life satisfaction. *Academy of Management Journal*, 22, 282–291.
- Schneider, B., Gunnarson, S. K., & Wheeler, J. K. (1992). The role of opportunity in the conceptualization and measurement of job satisfaction. In C. J. Cranny, P. C. Smith, & E. F. Stone (Eds.), *Job Satisfaction: How people feel about their jobs and how it affects their performance* (pp. 49–68). New York: Lexington.
- *Schneider, R. D., Sobol, M. P., Herrmann, T. F., & Cousins, L. R. (1978). A re-examination of the relationship between locus of control and voluntary heart rate change. *Journal of General Psychology*, 99, 49–60.
- Seligman, M. E. P. (1975). *Helplessness: On depression, development and death*. San Francisco, CA: Freeman.
- *Sharma, U., & Chaudhary, P. N. (1980). Locus of control and job satisfaction among engineers. *Psychological Studies*, 25, 126–128.

- *Siu, O., & Cooper, G. L. (1998). A study of occupational stress, job satisfaction and quitting intention in Hong Kong firms: The role of locus of control and organizational commitment. *Stress Medicine*, 14, 55–66.
- *Siu, O., Spector, P. E., Cooper, C. L., & Yu, S. (2002). Managerial stress in Greater China: The direct and moderator effects of coping strategies and work locus of control. *Applied Psychology: An International Review*, 51, 608–632.
- Skaaff, M. M., & Gardiner, P. (2003). Cultural variations in meaning of control. In S. H. Zarit, L. I. Pearlman, & K. W. Schaeie (Eds.), *Personal control in social and life course contexts* (pp. 83–105). New York: Springer Publishing Company.
- Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, 71, 549–570.
- *Smith-Jentsch, K. A., Salas, E., & Brannick, M. T. (2001). To transfer or not to transfer? Investigating the combined effects of trainee characteristics, team leader support, and team climate. *Journal of Applied Psychology*, 86, 279–292.
- Solomon, Z. (1988). Coping, locus of control, social support, and combat-related posttraumatic stress disorder: A prospective study. *Journal of Personality and Social Psychology*, 55, 279–285.
- Spector, P. E. (1982). Behavior in organizations as a function of employees' locus of control. *Psychological Bulletin*, 91, 482–497.
- *Spector, P. E. (1988). Development of work locus of control scale. *Journal of Occupational Psychology*, 61, 335–340.
- *Spector, P. E., Cooper, C. L., & Aguilar-Vafaie, M. E. (2002). A comparative study of perceived job stressor sources and job strain in American and Iranian managers. *Applied Psychology: An International Review*, 51, 446–457.
- *Spector, P. E., Cooper, C. L., Sanchez, J. I., O'Driscoll, M., & Sparks, K. (2002). Locus of control and well-being at work: How generalizable are western findings? *Academy of Management Journal*, 45, 453–466.
- *Spector, P. E., & O'Connell, B. J. (1994). The contribution of personality traits, negative affectivity, locus of control and Type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology*, 67, 1–11.
- *Spector, P. E., & Michaels, C. E. (1986). Personality and employee withdrawal: Effects of locus of control on turnover. *Psychological Reports*, 59, 63–66.
- *Spiro, R. L., & Weitz, B. A. (1990). Adaptive selling: Conceptualization, measurement, and nomological validity. *Journal of Marketing Research*, 26, 61–69.
- *Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38, 1442–1465.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124, 240–261.
- Steel, P. D., & Kammeyer-Mueller, J. D. (2002). Comparing meta-analytic moderator estimation techniques under realistic conditions. *Journal of Applied Psychology*, 87, 96–111.
- *Steiler, D., & Cooper, C. L. (2004). French version of the occupational stress indicator (OSI): Preliminary assessment of reliability and validity. *Stress and Health*, 20, 231–237.
- *Stein, L. M. (1999). *The impact of locus of control on the perceptions and interactions of mental health professionals with managed care organizations*. Unpublished dissertation. Drexel University.
- *Stewart, C. C., & Danes, S. M. (2001). Inclusion and control in resort-family businesses: A developmental approach to conflict. *Journal of Family and Economic Issues*, 22, 293–320.
- *Storms, P. L., & Spector, P. E. (1987). Relationships of organizational frustration with reported behavioral reactions: The moderating effect of locus of control. *Journal of Occupational Psychology*, 60, 227–234.
- *Strauser, D. R., & Ketz, K. (2002). The relationship between self-efficacy, locus of control and work responsibility. *Journal of Rehabilitation*, 68, 20–26.
- *Szilagyi, A. D., & Sims, H. P. (1975). Locus of control and expectancies across multiple occupational levels. *Journal of Applied Psychology*, 60, 638–640.
- *Szilagyi, A. D., Sims, H. P., & Keller, R. T. (1976). Role dynamics, locus of control, and employee attitudes and behavior. *Academy of Management Journal*, 19, 259–276.
- *Tak, S. H., & Laffrey, S. C. (2003). Life satisfaction and its correlates in older women with Osteoarthritis. *Orthopaedic Nursing*, 22, 182–189.
- *Takunaga, H. (1993). The use and abuse of consumer credit: Application of psychological theory and research. *Journal of Economic Psychology*, 14, 285–316.
- *Tang, T. L., Baldwin, L. J., & Frost, A. G. (1997). Locus of control as a moderator of the self-reported performance feedback-personal sacrifice relationship. *Personality and Individual Differences*, 22, 201–211.

- *Tanck, R. H., & Robbins, P. R. (1979). Assertiveness, locus of control and coping behaviors used to diminish tension. *Journal of Personality Assessment, 43*, 396–400.
- *Thornton, G. C. (1978). Differential effects of career planning on internals and externals. *Personnel Psychology, 31*, 471–476.
- *Tremblay, M., & Roger, A. (1993). Individual, familial, and organizational determinants of career plateau. *Group and Organizational Management, 18*, 411–435.
- *Tremblay, M., St-Onge, S., & Toulouse, J. (1997). Determinants of salary referents relevance: A field study of managers. *Journal of Business and Psychology, 11*, 463–484.
- *Tseng, M. S. (1970). Locus of control as a determinant of job proficiency, employability, and training satisfaction of vocational rehabilitation clients. *Journal of Client Psychology, 17*, 487–491.
- *Turban, D. B., & Dougherty, T. W. (1994). Role of protégé personality in receipt of mentoring and career success. *Academy of Management Journal, 37*, 688–702.
- Twenge, J. M., Zhang, L., & Charles, I. (2004). It's beyond my control: A cross-temporal meta-analysis of increasing externality in locus of control, 1960–2002. *Personality and Social Psychology Review, 8*, 308–319.
- *Vardi, Y. (2000). Psychological empowerment as a criterion for adjustment to a new job. *Psychological Reports, 87*, 1083–1093.
- Viswesvaran, C., & Ones, D. S. (2000). Measurement error in "Big Five Factors" personality assessment: Reliability generalization across studies and measures. *Educational and Psychological Measurement, 60*, 224–235.
- Vroom, H. H. (1964). *Work and motivation*. New York: Wiley.
- *Wallace, J. E. (2001). The benefits of mentoring for female lawyers. *Journal of Vocational Behavior, 58*, 366–391.
- *Wanberg, C. R. (1997). Antecedents and outcomes of coping behaviors among unemployed and reemployed individuals. *Journal of Applied Psychology, 82*, 731–744.
- *Wanberg, C. R., & Banas, J. T. (2000). Predictors and outcomes of openness to changes in a reorganizing workplace. *Journal of Applied Psychology, 85*, 132–142.
- Watson, D. C. (1998). The relationship of self-esteem, locus of control, and dimensional models to personality disorders. *Journal of Personality and Social Psychology, 13*, 399–420.
- *Webb, C. T., Waugh, F. E., & Herbert, J. D. (1993). Relationship between locus of control and performance on national board of medical examiners, Part I, among black medical students. *Psychological Reports, 72*, 1171–1177.
- Weisz, J. R., Rothbaum, F. M., & Blackburn, T. C. (1984). Standing out and standing in: The psychology of control in American and Japan. *American Psychologist, 39*, 955–969.
- Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of Management Journal, 41*, 540–555.
- *White, A. T., & Spector, P. E. (1987). An investigation of age-related factors in the age-job satisfaction relationship. *Psychology and Aging, 2*, 261–265.
- *White, C. M. (2003). *Coping resources, coping responses, and employees' contextual performance in a merger context*. Unpublished manuscript. California School of Professional Psychology.
- Whitener, E. M. (1990). Confusion of confidence intervals and credibility intervals in meta-analysis. *Journal of Applied Psychology, 75*, 315–321.
- *Widerszal-Bazyl, M., Cooper, C. L., Sparks, K., & Spector, P. E. (2000). Managerial stress in private and state organizations in Poland. *Stress Medicine, 16*, 299–314.
- *Witt, L. A. (1988). Locus of control and success as a professional money collector. *The Journal of Social Psychology, 128*, 703–704.
- *Witt, L. A. (1989). Delay of gratification and locus of control as predictors of organizational satisfaction and commitment: Sex differences. *Journal of General Psychology, 117*, 437–446.
- *Wofford, J. C., Daly, P. S., & Juban, R. L. (1999). Cognitive processes, strain, and stress: Gender differences in stress propensity indicators. *Anxiety, Stress, and Coping, 12*, 41–62.
- *Yousef, D. A. (2000). The Islamic work ethic as a mediator of the relationship between locus of control, role conflict, and role ambiguity. *Journal of Managerial Psychology, 15*, 283–302.
- Yukl, G. A., & Latham, G. P. (1978). Interrelationships among employee participation, individual differences, goal difficulty, goal acceptance, goal instrumentality, and performance. *Personnel Psychology, 31*, 305–323.
- *Zahrly, J., & Tosi, H. (1989). The differential effect of organizational induction process on early work role adjustment. *Journal of Organizational Behavior, 10*, 59–74.