Development and Exploratory Validation of an Organizational Efficacy Scale

James G. Bohn

Although many instruments have been developed to measure organizational constructs such as citizenship, climate, and organization-based esteem, to date no scale has been designed specifically to measure efficacy at the organizational level. Tools to measure organizational efficacy in a business context have been recommended for over two decades. This research developed an instrument to assess organizational efficacy, an extension of the theory of self-efficacy and group-level efficacy in two studies. The first study included employees of seven organizations to test divergent and convergent validity of the Organizational Efficacy Scale with existing instruments. The second study combined 22 organizations (n = 886) to validate the instrument statistically. The scale demonstrated appropriate levels of convergent and discriminant validity with existing instruments. The final 17 items displayed high reliability and supported a three-factor solution predicted by efficacy theory around the factors of collaboration, sense of mission, and sense of resilience. Additional psychometric properties for goodness of fit were acceptable.

Introduction

Classic water-cooler conversations regarding an organization's ability to weather storms may not be rigorously researched, but they reflect employee perceptions of the collective power of their organizations to manage in the face of struggle. In short, employees have an awareness of their organization's collective ability to produce financial outcomes and persevere in difficult business

climates. Collective efficacy is the shared belief among members of a group that their group or organization has what it takes to cope effectively and efficiently with the demands, challenges, stressors, and opportunities they face. Collective efficacy represents group members' shared sense in the group's capacity to work collectively in ways that produce desired outcomes and prevent undesired outcomes (Bandura, 1998).

Collective efficacy is important to business and organizational settings, because when group members assess their collective efficacy to be low, individual group members come to believe that exerting effort toward a desired goal makes little sense, because the chances of a successful group accomplishment are perceived to be low (Shamir, 1990). The collective efficacy of a group has been shown to predict the collective performance of that group (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Tasa, Taggar, & Seijts, 2007). Such findings point to a need to assess employee perceptions of organizational efficacy and also to the promise of doing so, at least to the extent to which organizations seek to understand and diagnose why organizational groups perform well or poorly in the face of challenge. Measuring an organization's collective efficacy toward achievement of organizational strategy is an important consideration for business because efficacy predicts performance (Bandura, 1997). In addition, much of what we know about change management is about whether an organization can collectively rally together to adopt something new. A very recent example from the pharmaceutical industry points out the need to improve the capabilities of people working together: "Faced with patent expirations that will ravage sales, Lilly is reorganizing for speed. . .[they] placed every department that plays a role in turning molecules into medicines under one roof, from the people who assess side effects to the folks who deal with the Food and Drug Administration" (Weintraub & Tirrell, 2010, p. 56). Finally, mergers and acquisitions (M&A) activity is a frequent occurrence in business. In these contexts, a tool to measure organizational efficacy holds value for the human resource (HR) community.

Purpose of the Study. The purpose of this study was to develop and test an instrument to measure levels of organizational efficacy, applying the theory of collective efficacy in a business context. Measurement of organizational efficacy has long-standing interest for human resource development (HRD). As far back as 1987, Marilyn Gist argued, "By using a valid instrument, research may show that group perceptions of efficacy are related to group performance" (p. 482). Bandura (1998) wrote:

People's shared beliefs in their collective power to produce desired outcomes is a crucial ingredient of collective agency. Group performance is the product of interactive and coordinative dynamics of its members. Therefore, perceived collective efficacy is not simply the sum of the efficacy beliefs of individual team members. It is an emergent group-level attribute. (p. 65)

Shamir (1990), in his analysis of employee motivation within corporations, made the following statement:

> In the case of collective tasks whose accomplishment depends on collective efforts, it is not rational to make an effort if collective efficacy is perceived to be low, because no matter how strong the perceived relationship between rewards and collective accomplishments, the chances of such accomplishment and therefore of obtaining rewards, are perceived to be low. Hence, a cognitive calculative formulation of collectivistic motivation must include the individual's subjective probability that the collective efforts will result in collective (organizational, departmental, or team) accomplishment. (p. 316)

Businesses face increasing pressures from competitors, stock market anomalies, loss of key leaders, changes in market share, ongoing organizational change, and competitive innovation (Ancona & Bresman, 2007). In the global economy businesses face unusual forms of competition, and with the advent of e-commerce, the perception that confidential and secret information may be competitive advantages is an artifact of the past. The one organizational constant, however, is a group of employees working together for common outcomes (Collins, 2001; Guttman, 2008). Measuring the collective employee perceptions of an organization's ability to perform in the face of stress is the purpose of this research. With an organizational efficacy diagnostic tool, HRD/organizational development (OD) teams or consultants could target specific areas for improving organizational efficacy and ultimately improve organizational performance. Although researchers have devised measurement instruments to assess self-efficacy and team efficacy, a scale to measure organizational efficacy in a business context does not exist at the present time.

Why a Separate Instrument? An important question that must be answered is why we need a separate instrument for measuring organizational efficacy in a business context. There are several reasons. The notion of collective efficacy for accomplishing tasks has gained strength in social and volunteer causes throughout the past decade (Sampson, Randenbusch, & Earls, 1998). Yet when compared to volunteer or nonprofit organizations, people in business are not working to support a social "cause." People in business organizations are working for the mission and stated purposes of the business, and although they may choose the organization for its reputation and its market prowess, the organization selects the mission and goals for employees to pursue. It is the business, not the cause, that provides impetus to daily operations.

Furthermore, although businesses can and do certainly support social causes, people in business organizations typically are not focused on political or neighborhood outcomes. People in business organizations also have a wage influence. They are not volunteers; they expect to receive compensation for

their efforts. This is a different dynamic than political groups, neighborhood groups, or nonprofits galvanizing efficacious teams of volunteers to solve social problems. Businesses are also in constant competition with other businesses. Thus there is an understanding among employees that other companies compete for market share and profits.

Organizations are complex entities with hundreds and even thousands of moving and changing attitudes, motivations, strategies, and ideas. Simply focusing on one aspect (employee morale, employee engagement) of an organization does not account for the ability of the organization to face challenges and the need to coordinate hundreds, even thousands of people toward a common goal. A measure of organizational efficacy evaluates people's perceptions of their entire organization, as opposed to most surveys, which measure one person's perceptions of their work situation.

A final reason for the need for specificity of a separate instrument is that Bandura (1997) expressly states the need to develop items that fit the efficacy circumstance being measured, in this case the organizational level. Therefore, a unique instrument is required to assess collective efficacy in an organizational–business context.

Literature Review

This next section serves as a foundation to development of the Organizational Efficacy Scale, including an overview of socially shared cognitions, and a review of existing organizational-level measurements. The theoretical foundation of organizational efficacy is discussed along with a detailed analysis of the proposed factors of organizational efficacy, notably sense of collective capacity, sense of mission or future, and sense of resilience. All are supported from the literature.

Socially Shared Cognitions. Central to the argument for measuring organizational efficacy is that people within organizations have a sense of the capabilities of an organization to face challenges and generate solutions, and their aggregate perceptions form a perception of organizational efficacy. Perceptions can be measured at a group level. Most basic is the concept of "social or collective identity," which is defined as "that aspect of the individuals' self-concept which derives from their knowledge of their membership in a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1978) (see also Brewer & Gardner, 1996; Silvester, Anderson, & Patterson, 1999).

Many business surveys and questionnaires tend to focus on how individuals view their unique circumstance in an organization, to the exclusion of understanding how individuals perceive the broader capabilities of the organization. But people act together to achieve outcomes, and they have a sense of the capabilities of others to perform work (Zaccaro, Blair, Peterson, & Zazanis, 1995) and they share a sense of cohesiveness based on attraction to task and

attraction to goals (Spink, 1990). Individuals in an organization are part of a larger whole. Lindsley, Brass, and Thomas (1995) wrote,

> We argue that there are certain cognitions that group and organizational members have which are quite different and distinguishable from the beliefs they experience as individuals in isolation, or in contexts outside the group or organization. These cognitions are collective, group-based beliefs, arising from the individual's ability to cognitively consider social entities larger than himself or herself. They are emergent properties of the social system rather than the individual and they cannot be reduced to their constituent parts. (p. 647)

Among the social cognitions that people have in organizations are beliefs or perceptions of an organization's capabilities: "Because of their diverse impact, an organization's beliefs about its efficacy to produce results is undoubtedly an important feature of its operative culture" (Bandura, 1997, p. 476). Thus, understanding organizational-level cognitions of efficacy has implications for performance. In short, what people believe about their aggregate capability to perform is crucial to long-term organizational success.

Existing Organizational Measurements as Compared to Organizational Efficacy. Before designing a way to measure organizational efficacy, an important question that must be addressed is, "Have similar constructs been measured at the organizational level?" In other words, have other constructs involving the cognitive processes of groups been measured to assess group-level insights into organizational behavior? Several examples follow. Collective efficacy has been measured at the school-system level (Bandura, 1993). Riggs, Warka, Babasa, Betancourt, & Hooker, (1994) designed, tested, and developed an instrument for measuring personal efficacy (PE), personal outcome expectancy (POE), collective efficacy (CE), and collective outcome expectancy (COE). Instruments have been developed to measure organization-based self-esteem (Pierce, Gardner, Cummings, & Dunham, 1989), organizational commitment (Eby, Freeman, Rush, & Charles, 1999; Steers, 1977), organizational climate (Kopelman, Brief & Guzzo, 1990), and organizational citizenship (Borman & Motowidlo, 1993, as cited by Judge, Bono, Thoresen, & Patton, 2001, p. 381; Organ, 1988). Measuring psychological constructs at the organizational level utilizing the perceptions of many people has a history both in the literature and in the practice of consultants and organizations around the world. What has been missing is a measurement of organizational efficacy. It could be argued that organizational efficacy is an even higher-order metric encompassing organization-based esteem, commitment, climate, and citizenship, because each of those constructs are measuring one aspect of the organization, whereas organization efficacy would take all of those elements into account in evaluating organizational capacity to achieve outcomes. For example, as demonstrated by Riggs et al., organizational commitment is correlated to collective efficacy.

Theoretical Foundation: Organizational Efficacy

The reader may ask, "What is the relationship between organizational efficacy and collective efficacy?" Organizational efficacy is a subcategory of collective efficacy, which has an established research base (Bandura, 1986, 1997, 2000; Fernández-Ballesteros, Díez-Nicolás, Caprara, Barbanelli, & Bandura, 2002). Collective efficacy can be applied to a wide variety of social situations where groups of people engage in collective activity to accomplish outcomes, including collective efficacy in neighborhoods (Sampson et al., 1998), politics (Pollock, 1983), education (Schwarzer, Schmitz, & Daytner, 1999), sports teams (Bandura, 1997; Hodges & Carron, 1992; Kozub & McDonnell, 2000; Spink, 1990), and, of course, business organizations, which are the focus of this study. Bandura (1997) identifies the construct as "collective organizational efficacy" (p. 468).

     One important distinction is that organizational efficacy is not self-efficacy. Gist (1987) stated this about self-efficacy: "Self-efficacy may be thought of as a superordinate judgment of performance capability that is induced by the assimilation and integration of multiple performance determinants" (p. 188). The clarification is important in this article, because self-efficacy is a commonly known construct and should not be confused with organizational efficacy, and thus self-efficacy becomes a construct used for analyzing divergent validity. A person may have a strong sense of self-efficacy in an organization that is failing, and a person with weak or low self-efficacy may find him- or herself emboldened in a company with strong organizational efficacy.

     Defining the Construct of Organizational Efficacy. This section develops the construct of organizational efficacy by discussing a general overview of how organizations with varying levels of efficacy might behave, and providing detailed support for the three proposed factors of organizational efficacy.

     Theoretical Characteristics of Highly Efficacious Organizations. In highly efficacious organizations, people should think differently, work differently, and act differently and the outcomes should be different from organizations where organizational efficacy is low (similar to what we would expect from people or groups with low or high levels of self-efficacy). People should be able to sense a collective resource to help them accomplish collective goals. Many definitions of collective efficacy echo that statement. Shea and Guzzo (1987) state, "To perform effectively, groups also need at least a minimal belief in their own efficacy" (p. 27). Zaccaro et al. (1995) define collective efficacy as "a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands" (p. 309). According to Kozub and McDonnell (2000), collective efficacy is a part of the perceptions individuals hold of the group's performance capabilities. And Riggs et al. (1994) state, "Collective efficacy refers to individual's assessments of their group's collective ability to perform job-related behaviors" (p. 794).

People in organizations can assess the whole. As Bandura (1986) notes, "Perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when group efforts fail to produce results" (p. 449). Bandura (1997) later added that "perceived collective efficacy is defined as a group's shared belief in its conjoint capabilities to organize and execute courses of action required to produce given levels of attainments" (p. 477). How does collective efficacy influence a group? "Belief of collective efficacy affects the sense of mission and purpose of a system, the strength of common commitment to what it seeks to achieve, how well its members work together to produce results, and the group's resilience in the face of difficulties" (Bandura, 1997, p. 469).

People in an organization high in efficacy would seem to demonstrate a high degree of morale, a desire to be at work, and a desire to do the work; they would be enthusiastic workers who want to be part of an organization (employee engagement?), workers willing to take on a challenge, workers who believe they are stronger than their competition, with a track record of accomplishments, a substantial vision for the future, and significant evidence of innovation (Buckingham & Coffmann, 1999). In short, organizational efficacy is a sense of persistence, a sense of "can do" that permeates the workplace. Thus, organizational efficacy is defined as *a generative capacity within an organization to cope effectively with the demands, challenges, stressors, and opportunities it encounters within the business environment. It exists as an aggregated judgment of an organization's individual members' assessment of their (a) collective capacities, (b) mission or purpose, and (c) sense of resilience.*

Analysis of Three Proposed Factors in Organizational Efficacy. This next section offers an in-depth analysis of the three proposed factors of organizational efficacy: sense of collective capability, sense of mission or future, and sense of resilience, derived from Bandura's theory. Bandura (1986) stated, "Perceived collective efficacy will influence what people (1) choose to do as a group, (2) how much effort they put into it, and (3) their staying power when group efforts fail to produce results" (p. 449). He also wrote, "Belief of collective efficacy affects the sense of mission and purpose of a system, the strength of common commitment to what it seeks to achieve, how well its members work together to produce results, and the group's resiliency in the face of difficulties" (Bandura, 1997, p. 469). In the year 2000, he amplified this statement as follows:

> People's shared beliefs in their collective efficacy influence the types of futures they seek to achieve through collective action, how well they use their resources, how much effort they put into their group endeavor, their staying power when collective efforts fail to produce quick results or meet forcible opposition, and the vulnerability to discouragement that can beset people taking on tough social problems. (Bandura, p. 76)

Thus three theoretical factors of organizational efficacy are hypothesized as:

Sense of collective capability—Can we work together to accomplish the
   goal?
Sense of mission, future, or purpose—Do we know where we're going?
Sense of resilience—Can we "stay the course" in the presence of obstacles?

Having established these three factors, the organizational literature is
reviewed to analyze each in greater depth.

Sense of Collective Capability. "As the nature of work has changed, cooper-
ation among employees has become increasingly important" (C. Jackson, Wesson,
Colquit, & Zepata-Phelan, 2006). A classic *Harvard Business Review* article
states, "Coordination or teamwork is especially important if an organization is
to discover and act on cost, quality, and product development opportunities"
(Beer, Eisenstat, & Spector, 1990, p. 160). Collective capability denotes the
capability of the organization to marshal resources and organize activities to
accomplish ends. Collaboration, as theorized by Bandura, is a very natural fac-
tor of organizational efficacy, because the ability to get things done, to perform,
to achieve outcomes, is largely done through groups of people. Collaboration
speeds decision making, ensures that a complete solution is derived through
deliberate discussions with other members of the organization, and accelerates
processing of action as people work together toward a solution. Getting peo-
ple to think about the impact on other people and how they impact a solution
is another major step in collaboration. Solutions that benefit and impact an
entire company are rarely effective designed by one or two people. An organi-
zation must work together to achieve outcomes. It is collaboration that drives
organizational achievement in the most rapid and efficient manner.

Consider the strong emphasis on teamwork throughout the past three
decades. Howell and Dipboye (1982), in their study of industrial psychology,
highlight that coordination of actions is crucial to organizational success. The
notion of an organizational level of coordination is a natural extension of
the idea of teamwork.

Kotter and Heskett (1992) state that in an organization with a strong cul-
ture, "Members actively support one another's efforts to identify all problems
and implement workable solutions" (p. 44). Supportive relationships of co-
workers mediate effective performance in high-stress jobs (Robbins, 1998).
Katz and Kahn (1978) stated:

Three categories of behavior are required to achieve high levels of organiza-
tional effectiveness. People must join and remain in the organization; they must
perform dependably the roles assigned to them; and they must engage in occa-
sional innovative and cooperative behavior beyond the requirements of the role
but in service of organizational objectives. (p. 424)

If people go beyond their normal work roles to support others, the organization will see the benefits. Larson and LaFasto (1989) explain it differently. They state that a sense of confidence comes from an "ability to be collaborative" (p. 71). Teams that work together well can gain from the power of the entire group, and thus elevate a sense of organizational efficacy. Thus, one factor in organizational efficacy is that ability of a large group of people to work together to achieve ends.

Factors that hinder collaboration include pet projects, failure to challenge the status quo, protection of departmental turf, excess attention to a few projects, lack of attention due to too many projects, failure to see the common good, and a failure to expend the effort required to understand the intricacies of collective action. What are often called "silos" represent a lack of coordination between teams in an organization, and they are a recipe for disaster.

Sense of Mission, Future, or Purpose. Much has been written about why companies establish missions, goals, and objectives. Labovitz and Rosansky (1997), of Organizational Dynamics, Inc., among others, have written entire books devoted to the concept of organizational alignment, which is essentially an approach to dedicating an organization to a common mission and purpose. The primary reason for mission or alignment is that task uncertainty has a negative influence on the performance of the group (Howell & Dipboye, 1982). If people in an organization are unsure of where they are headed, they will be uncertain about what it is they are to do, which would seem to undermine organizational efficacy. In a study of corporate culture, Denison (1990) wrote,

> A mission provides purpose and meaning, as well as a host of non-economic reasons why the work of the organization is important. Second, a sense of mission provides clear direction and goals that serve to define the appropriate course of action for the organization and its members. (p. 13)

Further, "in successful corporations . . . a shared sense of the broad term goals of the firm helps to structure behavior . . . . A sense of mission requires that organizations apply future perfect thinking" (Denison, 1990, p. 14). In other words, people share a mental picture of the future they will create and it helps them to focus their energies on things that will help them accomplish the desired future.

This is consistent with the research conducted by Kotter and Heskett (1992), where they state that "cultural strength" of a company relates to three ideas, the first of which is "goal alignment. In a firm with a strong culture, employees tend to 'march to the same drummer'" (p. 16). The idea of knowing which way an organization is going is an essential aspect of organizational efficacy. Senge (1990) expands this concept of mission by stating,

> If any one idea about leadership has inspired organizations for thousands of years, it's the capacity to hold a shared picture of the future we seek. (p. 9)

> In a corporation, a shared vision changes people's relationships with the
> company. . . . A shared vision is the first step in allowing people who mistrusted
> each other to begin to work together . . . In fact, an organization's sense
> of purpose, vision, and operating values establish the most basic level of
> commonality. (p. 208)

Larson and LaFasto (1989) made an observation about teams that supports the notion that a mission is important to efficacy:

> It is rare to discover anything in the realm of human behavior that occurs
> with great consistency . . . Therefore it was surprising to find that in every
> case, without exception, when an effectively functioning team was identified,
> it was described by the respondent as having a clear understanding of its
> objective. (p. 27)

They sum it up by saying, "The more an individual or a group of people have a clear understanding of the nature of the problem that confronts them, the more effective they will be in solving that problem" (p. 28).

A question in Gallup's widely used organizational survey (Buckingham & Coffmann, 1999) shows the importance of mission. "The mission/purpose of my company makes me feel my job is important." An organization uncertain about its mission and future would seem unlikely to be high in organizational efficacy. Thus, items about mission and alignment are essential in a measurement of organizational efficacy. Through measuring this aspect of organizational efficacy, companies can decipher the root cause of people's lack of alignment around goals. A lack of clarity, purpose, mission, and focus sap efficacy and induce organizational ineffectiveness. This can be identified and isolated with an organizational efficacy tool.

Sense of Resilience. Organizational efficacy theory suggests that when people are facing genuine obstacles or impediments to progress, they can sense whether the organization will be able to persist and overcome, or simply give up. At the individual level, a sense of resilience is a sense of being able to overcome difficulties and stay the course when things go wrong (Bandura, 1997). If a person senses imminent doom when things go wrong, they most likely do not have high levels of efficacy to persist and go forward. Maddux (1995) noted that a person's sense of anxiety can negatively influence self-efficacy. This may also be true in organizations.

An organization strong in efficacy should have a similar sense of resilience. Kotter and Heskett (1992) describe a strong organization in the following way: "There is a feeling of shared confidence: the members believe, without a doubt, that they can effectively manage whatever new problems and opportunities come their way" (p. 45). Contrast that with the following statement: "Fear's cost largely comes down to figuring the influence of negative emotions on people's work and how it affects the potential of individuals and the organization

as a whole" (Ryan & Oestrich, 1998, p. 107). The fear these authors are referring to is manifested in different ways in organizations, but the statement stands on its own in recognizing that fear has a negative impact on organizational performance. Larson and LaFasto (1989) state:

> When strong technical skills are combined with a desire to contribute and an ability to be collaborative, the observable outcome is an elevated sense of confidence among team members. This confidence (efficacy?) in turn, translates into the ability of a team to be self-correcting in its capacity to adjust to unexpected adversity and emergent challenges. (p. 71).

The capability of adjusting to "unexpected adversity and emergent challenges" is precisely what we would expect in an organization high in organizational efficacy. Organizations that have a sense of being overwhelmed by their competitors or a sense that everything is falling apart are not likely to have a strong sense of efficacy. Although there are many reasons for this, a sense of dread that pervades an organization is likely to deplete it of its strength. A sense of resilience is that capability to bounce back in the face of obstacles and trials (Coutu, 2003), clearly another key aspect of organizational efficacy.

Thus, items were derived around these three specific domains to assess organizational efficacy: sense of collective capability, sense of mission or future, and sense of resilience. These categories are consistent with Bandura's (1997) analysis of efficacy, but they also go beyond his research in that they are factors that more sharply define organizational efficacy. Effort was made to develop items that would be specific enough to truly assess the efficacy of the organization under study, while preserving enough generalization so that many organizations could use the instrument.

Development of the Organizational Efficacy Scale

This section describes item categories, development, procedures, and participants. The construction and validation of the organizational efficacy instrument followed the general sequential procedures for developing self-report scales of individual differences (D. N. Jackson, 1971; D. N. Jackson & Paunonen, 1980). According to this procedure, a scale is developed with an eye toward both theoretical and empirical criteria. Items are rationally derived from theory; the item pool is then reduced and refined through various empirical procedures that maximize internal consistency and convergent and divergent validity while minimizing the influence of response styles associated with item variability, agreement–disagreement wording, gender bias, and other factors.

Initial Organizational Efficacy Scale Items. Items were written for the Organizational Efficacy Scale utilizing procedures recommended by D. N. Jackson (1971). They were derived from multiple sources (Szabala, 2007): An open-ended

question was sent to 50 university-level business educators, consultants, and businesspeople that asked, "What gives you confidence that an organization can accomplish its goals?" This sentence-completion exercise yielded initial ideas for the scale. Three decades of experience in the business world provided the author with a source of ideas based on daily interactions and conversations with staff, management, and executive management with hundreds of people in multiple organizations (see Pierce et al., 1989, for a similar approach). This approach is consistent with other research using open-ended sentence-completion exercises (Bandura, 1997), organizational observations (Kraut, 1996), and interviews (Edwards, Thomas, Rosenfeld, & Booth-Kewley, 1997). Items were written to measure the factors indicated in the construct of organizational efficacy, as elaborated by Bandura, directly.

Item Categories. Collective efficacy is defined as follows:

> Belief of collective efficacy affects the sense of mission and purpose of a system, the strength of common commitment to what it seeks to achieve, how well its members work together to produce results, and the group's resiliency in the face of difficulties. (Bandura, 1997, p. 469)

Thus, through the interviews, sentence-completion exercises, and observations described above, items were developed around the recommended factors of mission or vision, collective capability, and resilience as follows: Items included statements about ability to face challenges, ability to work together, and ability to coordinate; items included statements about organizational vision, a sense of purpose and mission; items included statements about organizational survival and a sense of strength in the midst of organizational struggle.

The items were evaluated by two experts in collective efficacy, highly cited researchers who have authored more than 50 articles on various aspects of efficacy. Both authors concurred that the items on the scale were focused and appropriate for measuring organizational efficacy. Responses were received from Roger Goddard, a recognized expert in collective efficacy, and Robert Wood, who wrote many articles with Albert Bandura, many specific to social cognitive theory (efficacy) in the business environment (see, for example, Wood and Bandura, 1989). Both authors concurred that the items on the scale were focused and appropriate for measuring organizational efficacy, as they were written for a broader perception of efficacy (Goddard, Hoy, & Woolfolk-Hoy, 2000). The researcher requested that these experts carefully analyze the questions to see if they were appropriate and accurate for measuring organizational efficacy. They supported the items as written. All of these items were used in the first study. (R) indicates items requiring reverse scoring (see Table 1).

Initial Items.

Likert-Scale Description. This research used a 6-point scale to force a decision, as opposed to allowing a neutral category. This is consistent with a scale used by Yang, Cervero, Valentine, and Benson (1998). A larger scale is more

Table 1. Initial Items. (R) Indicates Reverse Coding

1. People in this organization can take on any challenge.
2. Because our departments work together well, this organization can beat our competition.
3. This organization is more innovative than most organizations I have worked in.
4. In this organization, we can coordinate our efforts to complete difficult projects.
5. People in this organization can work together to accomplish a goal.
6. I think this organization should give up on trying to accomplish our goals because we don't work together very well. (R)
7. People in this organization can mobilize efforts to accomplish difficult and complex goals.
8. Every time this organization takes on a challenge we are confident of success.
9. Many of the projects we are working on intimidate our organization. (R)
10. In this organization, everyone works together effectively.
11. Few organizations are as strong as this one.
12. Instead of meeting customer demand, this organization is overwhelmed by it. (R)
13. This organization can meet customer requirements because the employees are extremely competent.
14. When faced with a business setback, the people in this organization never seem able to mobilize the effort needed to respond effectively. (R)
15. People here have a sense of purpose to accomplish something.
16. People in this organization know where we are going in the future.
17. This company has a strong vision.
18. We are very certain about what we will accomplish together as a company.
19. People in this organization are unsure of what they should do.
20. This organization has no vision of where it needs to go in the future. (R)
21. We can accomplish the goals of this organization with much effort.
22. This organization is confident about its future.
23. Vision would be the last word I would use to describe our future. (R)
24. There is no reason for us to persist in our goals. (R)
25. Our ability to work together makes me very optimistic about the future growth of this organization.
26. This organization will still be in operation in 5 years.
27. This organization will double in size in the next 10 years.
28. During the coming economic downturn, this organization will come out strong.
29. As an organization, we are probably going down the wrong path. (R)
30. This organization is likely to fall apart in a few years. (R)
31. Since we cannot get our act together, lots of people are likely to leave this company in a few years. (R)
32. This organization has no hope of surviving more than a year or two. (R)
33. It would be better if we didn't take on some projects since we are likely to fail. (R)
34. I would be surprised if this organization exists in 5 years. (R)
35. Since this organization is likely to fail, I would never recommend that a friend take a job here. (R)
36. Time after time, I have seen this organization handle stress with poise and confidence.
37. When things are stressful due to high customer demand, people here start to panic. (R)
38. This organization is full of strength, energy, and optimism.

sensitive to different judgments of the construct (Bandura, 1997). This is similar to the approach used by Parker (1994) to assess teacher collective efficacy utilizing a scale of 0–10, with 0 = *cannot do at all*, and 10 = *certain can do*. Thus, the scale used in this research is as follows: 6 = *strongly agree*, 5 = *agree*, 4 = *agree somewhat*, 3 = *disagree somewhat*, 2 = *disagree*, 1 = *strongly disagree*.

Study 1

The purpose of Study 1 was to isolate items that did not show divergent or convergent reliability with other measures. This is standard practice in instrument development.

Method

Participants—Audience and Sampling. Several months before the researcher requested participants for the research, he contacted multiple organizations requesting their interest. Those who showed interest were promised an overall report on the basic findings of the research for their organization when the work was completed. Managers and leaders asked for volunteers within their organizations to participate. The first study included eight midsized manufacturing companies in the midwestern United States. These companies were contacted well in advance of data collection to explain the purpose of the research and the amount of time required. The technique is consistent with the convenience sampling approach used by Goddard, Hoy, and Woolfolk-Hoy (2000) in developing their Collective Teacher Efficacy Scale.

A total of eight companies were contacted for Study 1, and seven elected to participate. A total of 432 pencil-and-paper questionnaires were distributed and 142 were returned, yielding a return rate of 32%. Guaranteed anonymity requires that the companies not be listed in this research. Some companies returned 100% of the questionnaires, whereas others returned only 10%. Return rate varied by company. Participants included 30 different departments, ranging from accounting to warehouse. Gender response was nearly even, with 46% female and 51% male; 3% declined to identify gender. Of the sample, 2% identified themselves as African American, 79% identified themselves as Caucasian, 1% identified themselves as Native American, and 15% identified themselves as Latin American. Fewer than 1% identified themselves as Pacific Islander, and 3% declined to identify their ethnic background.

The purpose of Study 1 was to retrieve a sample to test convergent or divergent validity of the Organizational Efficacy Scale with existing scales, and to eliminate items that did not meet acceptable statistical criteria. It is important to note that the participants from these seven companies were responding in the context of their own organizations, providing perceptions of organizational efficacy within the natural domain of their workplace.

Measures. To test for convergent and divergent validity, the Study 1 questionnaire contained 80 questions. The first 10 questions were adapted from the Collective Teacher Efficacy Questionnaire (Schwarzer et al., 1999). Questions

11–49 were the original items for the organizational efficacy instrument being developed for this research. Questions 55–58 were taken directly from the Collective Efficacy questionnaire (Riggs et al., 1994). Questions 50–54 and 59 and 60 were not used in this study (material was collected for future studies). Questions 61–70 were taken from a general self-efficacy questionnaire (Schwarzer & Jerusalem, 1995). Finally, items 71–80 were taken directly from the Pierce et al. (1989) organization-based esteem scale.

Convergent Validity. As noted above, two tools were used to conduct convergent validity analyses: The Riggs Collective Efficacy Scale (1994) and the Schwarzer et al. (1999) Collective Teacher Efficacy Scale. The expectation was that high convergent validity would be shown between these instruments and the Organizational Efficacy Questionnaire.

Divergent Validity. Two specific constructs were used for divergent validity in this research: organization-based self-esteem (Pierce et al., 1989) and individual self-efficacy. The Schwarzer et al. (1999) self-efficacy instrument has been substantially tested and thus becomes a basis for divergent validity.

Procedures.

Aggregation Strategy. The approach taken by this research was to aggregate individual perceptions of collective capabilities. Bandura (1997) states, "The . . . holistic judgment encompasses the coordinative and interactive influences operating within the group" (p. 478). Individual perceptions are the most logical unit of measurement since it is the perception of the individuals in an organization that combine to assess the collective perception of organizational efficacy (Bandura, 2000). It has been demonstrated that individuals can assess the capabilities of an organization to accomplish its goals (Goddard, Hoy, & Woolfolk-Hoy, 2004). This study used the aggregation of individual perceptions, because (a) it fits the definition used above, (b) it fits good measurement practice for this construct, and (c) it is the approach selected in Bandura's (2000) work on the subject of collective efficacy.

Instrument Time Requirements. The first instrument was designed to take no longer than 30 minutes to complete, because of the stresses and demands of the workplace. Most companies are not willing to allow employees hours to complete a questionnaire, because employees who are taken from their jobs to perform research are no longer contributing to the bottom line.

Results. Data from 142 returned and fully completed questionnaires in Study 1 were used in the construction process of the Organizational Efficacy Scale. First, descriptive statistics on each of the 38 items were examined. Those items that showed little variability in response were dropped from the final version of the scale (variability refers to selections made along the scale of 1–6). Second, each item's score was correlated with the total score for the 38-item Organizational Efficacy Scale. Those items showing statistically nonsignificant part–whole correlations were dropped from the final version of the Organizational Efficacy Scale.

 Correlations for each of the 38 original organizational efficacy items and the total score on two convergent and two divergent measures were also

obtained. The two convergent measures were collective efficacy (Riggs et al., 1994) and collective teacher efficacy (Schwarzer et al., 1999). The two divergent measures were organization-based esteem (Pierce et al., 1989) and generalized self-efficacy (Schwarzer & Jerusalem, 1995). Items were chosen that showed good correlations with the two convergent measures of organizational efficacy (generally, rs above 0.30) and relatively low correlations with the two divergent measures of organizational efficacy (generally, rs below 0.30), yielding 23 remaining items.

The instrument converged with both the Collective Teacher Efficacy Scale ($r = 0.857$, $p < 0.01$) and the Riggs Collective Efficacy Belief scale ($r = 0.613$, $p < 0.01$). There was a modest correlation ($r = 0.387$, $p < 0.01$) between organization-based esteem and the Organizational Efficacy Scale, indicating some overlap in the constructs. There was no correlation between self-efficacy and the Organizational Efficacy Scale. These measures are adequate to validate that the Organizational Efficacy Scale is not measuring self-efficacy or organization-based esteem, but is effectively measuring organizational efficacy, as shown by the strong correlational convergence with existing collective efficacy scales (Lau, Shaffer, & Au, 2007). Thus the intent of validating convergent and divergent validity was established through Study 1.

Study 2

The purpose of Study 2 was to test the items that remained after completion of the convergent and discriminant analyses (Jackson & Paunonen, 1980). The second study was undertaken to further test the Organizational Efficacy Scale's reliability, validity, factor differentiation, and goodness of fit.

Method. Twenty-three items remained from the original set of 38 potential items for the Organizational Efficacy Scale, after completing convergent and divergent validity analysis. The scale was renumbered and reformatted.

Participants. Fifteen additional organizations were added to the original seven for a total of 22 organizations, $n = 886$ participants. These organizations are autonomous businesses in cities across North America. All data for this study came from autonomous, intact business organizations, as opposed to the popular research approach of using participants from MBA classroom populations (McLean, Yang, Min-Hsin, Tolbert, & Larkin, 2005; Tasa et al., 2007). Thus, the data were provided by people in North America within the context of their organizations assessing efficacy in their own natural organizational work environment. The breadth of the organizations is significant for the generalizability of the instrument. Businesses ranged from cheese producers to plastic bag manufacturers, metal stamping companies, beer producers, food services, service organizations, printing companies, insurance companies, large companies (in the billions of sales) and small companies with under $10 million in annual sales. Many of the companies are known across North America. Confidentiality agreements forbid the use of their names in this article, but many are familiar household names.

Procedures. Some of the organizations received paper-and-pencil–based copies; others were provided access over the Internet. The data were collected first from 2000 to 2001, and then from 2005 through 2007 at these different organizational sites. The purpose for the extensive data collection was to provide a large data set for the factor and validity analyses. Nunnaly (as cited in Crocker & Algina, 1986) recommends a minimum of five subjects per item to do a full factor analysis. Using that rule of thumb, Nunnaly would recommend 115 participants (23 items × 5). The combined data set in Study 2 had over 800 participants, which far exceeds the number of subjects recommended by Nunnaly.

Results

Statistical Analysis. The combined data set was subjected to exploratory factor analysis. Results are shown in Table 2. The 17 items with the highest factor loadings (above 0.60) were retained. An examination of the matrix revealed a three-factor structure as predicted by Bandura's theory. The general tenor of items in Factor 1 is Collaboration, items in Factor 2 denote a sense of Mission or Future, and items in Factor 3 (when reverse coded) describe a sense of Resilience. This is consistent with Bandura's theory of organizational efficacy.

The Measure of Sampling Adequacy (MSA) test is the Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy. The KMO value for the Exploratory Factor Analysis was 0.932. The KMO index ranges from 0 to 1, with .6 suggested as the minimum value for a good factor analysis (Tabachnick & Fidell, 2001). Thus, the sampling adequacy is sufficient for this study.

Cronbach's alpha results resulted in 0.918 for Factor One, 0.877 for Factor Two, and 0.727 for Factor Three. Alpha for the entire 17-item Organizational Efficacy Scale was 0.935. Results for each of the subscales and the overall scale suggest a reliable measure of organizational efficacy. The items loaded on the hypothesized three-factor model, which were identified as Sense of Collaboration, Sense of Mission and Future, and Sense of Resilience. The high alpha levels, combined with the data loading on the hypothesized factors, confirms the reliability of the scale.

Data were also subjected to a second level of testing for confirmatory factor analysis using EQS, a structural equation modeling software program. The fit statistics for the model were as follows: goodness of fit (GFI) = 0.874; χ^2 (116) = 995.91 ($p = 0.0001$); root-mean-square error of approximation (RMSEA) = 0.096; 90% confidence interval for RMSEA = (0.090; 0.101); p value for test of close fit (RMSEA < 0.05) = 0.0000. Comparative fit index was 0.907, Standardized Root Mean Square Residual (RMR) was 0.047, and Bentler's comparative fit index was 0.09. The GFI demonstrated that the model accounted for 87% of the variation in the items. It has been established that the null hypothesis will rarely be true in large sample sizes (Bollen & Long, 1993). Root-mean-square error of approximation, while high, is acceptable. In general, the psychometric properties of the Organizational Efficacy Scale are

Table 2. Items, Factors, Variance, and Eigenvalues

	Factor 1 Collaboration	Factor 2 Mission and Future	Factor 3 Resilience
Item			
People in this organization can take . on any challenge	0.725		
This organization can beat our competition.	0.693		
This organization is far more innovative that most organizations.	0.611		
In this organization, we coordinate our efforts to complete difficult projects.	0.823		
People in this organization can work together to accomplish a goal.	0.802		
People in this organization can mobilize efforts to accomplish difficult and complex goals.	0.815		
In this organization, everyone works together very effectively.	0.747		
This organization can meet customer requirements because the employees are extremely competent.	0.626		
People here have a sense of purpose.	0.675		
This organization has a strong vision of the future.		0.638	
This organization is confident about its future.		0.664	
This company will double in size in the next 10 years.		0.735	
During an economic downturn, this organization will come out strong.		0.725	
This organization is likely to fall apart in a few years.		0.766	
This organization has no hope of surviving more than a year or two.			0.785
I would be surprised if this organization exists in 5 years.			0.817
Because this organization is likely to fail, I would never recommend that a friend work here.			0.757
Eigenvalue	5.593	3.450	2.338
Percent variance explained	32.9%	20.29%	13.75%
Cronbach's alpha (0.935 for entire scale)	0.918	0.877	0.727

acceptable for this exploratory study. The GFI statistics were weaker than desired, but acceptable.

Summary and Discussion

The intent of this study was to develop and conduct exploratory tests on the reliability and validity of an instrument to measure organizational efficacy. Three hypothesized factors emerged from the nearly 900-person sample with acceptable psychometric results. The goal of this exploratory study, to develop and analyze an instrument to measure organizational efficacy, was accomplished.

Based on the review of the literature and the statistical results, the preliminary finding is that this instrument is measuring organizational efficacy. The data were subjected to intense statistical analysis, and the reliability indices are strong. The research had significant strength in the size of the data sample and in the natural environment of the studies.

Limitations. One limitation of the study is that it is an American-only study, lacking international participants. Future studies of the tool may find different results in different cultures. This study also does not include criterion variable analyses with customer satisfaction, employee satisfaction, and financial criteria for correlations with the snapshot of efficacy, but that was not the intent of this exploratory study.

A second limitation is in the sampling approach. Several organizations provided large numbers of samples, whereas others provided just a few. Clearly, it would have been better to get a consistent percentage of employees within an organization, but the study was limited by the willingness of participants (and their management) to spend time on survey research. The research benefited from a large sample size, but the sampling methods could have been improved.

Finally, the GFI is not so low as one would expect for this type of research. That could be due to the sampling approach, the variability of the types of companies, or other exogenous factors. A second round of research with the tool should bring the model into sharper focus. The exploratory nature of this study reveals the data in their true form, with their true output.

Implications for Research and Practice. If the broad goal of organization development efforts is to "legitimatize and encourage collaborative management of team, interteam and organizational cultures" (French & Bell, 1999, p. 268), a measurement of organizational efficacy would seem to be a useful tool in the process. This exploratory research produced an instrument with solid psychometric properties, developed in the natural context of the working environment. Thus the instrument can be used with confidence in analyzing organizational efficacy.

An important implication to HRD practice is the parsimony of this instrument. Long surveys may put a strain on organizations, or provide extensive

data that may overwhelm participants. But this 17-item scale allows for rapid investigation of employees' perceived levels of organizational efficacy, providing a targeted detailed analysis of the areas an organization must emphasize to improve levels of efficacy. Many executives have little patience for engaging the time of employees on extensive surveys that provide data without showing a clear diagnosis for action.

The instrument represents a departure from standard organizational surveys by studying employee perceptions of efficacy at the organizational level. This is a different approach to organizational analysis, because it derives employee perceptions of their total organization, as opposed to their perceptions of individual departments or supervisors. It is essentially outward looking, as opposed to inward looking. An efficacy judgment is the classic water-cooler view of employees' perceptions of their organization. It includes the good, the bad, and the ugly. "The . . . holistic judgment encompasses the coordinative and interactive influences operating within the group" (Bandura, 1997, p. 478).

Of interest to HRD practitioners are the results from an analysis of variance that showed 17% of the variation in organizational efficacy was demonstrated at the organizational level. This shows that the tool isolates levels of efficacy at the organizational level, and thus is effectively assessing differences in efficacy level. The purpose of this organizational analysis is to question why results are low and apply a "why?" diagnostic to assess low scores and make changes around collaboration, mission, and resilience. Conversely, it would be valuable to learn why some aspects of an organization (departments, divisions, or geographic regions) are scoring very high, so they can be used as exemplars for others.

From an organizational perspective, measuring organizational efficacy is an extremely efficient way to get to the heart of whether employees believe companies can survive and thrive. Contemporary organizations do not have excess time for evaluating the capabilities of their organizations. Although many employee surveys may address issues surrounding climate, organizational commitment, and organization-based esteem, each of those metrics requires time and energy from their people to complete. The organizational efficacy approach reaches to the heart of issues surrounding the ability of an organization to work together, to know where they are going, and to assess their resilience in the face of obstacles. In the hands of a capable consultant, or team member, or senior HR person, the Organizational Efficacy Scale items are specific enough to drive action plans and change.

When Kotter (1996) wrote that organizations need to "celebrate quick wins" during change projects, he articulated six reasons for doing so, among them providing evidence "that people are getting stronger" and "building momentum" (p. 122). He wrote these things as obvious tactical actions managers need to take for change to be successful, but he did not address the primary social psychological reason for doing so: These actions are evidence of and a means for building organizational efficacy.

Finally, understanding whether departments and subunits are collaborating is essential to organizational performance because coordinated efforts increase the speed of information flow and decision making, all leading to accelerated action (Busi & Bititci, 2006). Silos in organizations lead to ineffective communications impeding organizational outcomes. Assessing organizational efficacy reveals employee perceptions of whether departments and teams can work together. Thus, through understanding how employees perceive an organization's efficacy, OD and HRD teams can work at the strategic HR level to break down barriers and silos to improve organizational performance and help their organizations weather the storms of competition and the demands of the marketplace. This research is particularly salient during the current global economic stress.

We can modify Gist's (1987) description of organizational efficacy as a superordinate judgment of organizational performance capability that is induced by the assimilation and integration of multiple performance determinants including organizational collaboration, organizational mission, and focus and organizational resilience. In the end, the ability of an organization to know its course, to work together to achieve that course, and to persist in the face of obstacles is, after all, a statement of its efficacy. And given the increasing pace of change in organizations, much of what we know about change management is inclusive. Can an organization work together? Do its members know the mission/vision of the change? Will they remain strong in the face of struggle during the change?

In summary, the value of using organizational efficacy as an overarching construct to assess organizations is that it brings together multiple informational sources of data under one theoretical construct, and aggregates it into a useful organizational capability metric. It brings together perceptions of the entire organization concerning the organization's capacity to control outcomes. Thus, assessment of organizational efficacy may be the most important assessment an organization can undertake prior to change implementation to increase the chance for success. Most important, this tool provides organizations, the real focus of this research, with a tool to assess the collective competence of the organization. The seemingly insignificant water-cooler conversations about the collective competence of the organization have greater implications than we realize, because employee discussions of collective capabilities, sense of mission, and sense of resilience reflect their beliefs in the collective power of the organization.

Recommendations for Further Research. The Organizational Efficacy Scale provides a basis for future research. Several recommendations follow:

1. Determine the criterion validity of the instrument with the use of financial or other data, such as employee turnover. The relationship of criterion variables to efficacy is an important step in further validation of the instrument.

2. Conduct cause-and-effect studies of organizational efficacy influencers to discover what endogenous and exogenous variables most influence and challenge organizational efficacy. For example, how does leadership influence organizational efficacy? How do mergers and acquisitions influence levels of organizational efficacy?

3. Develop a theory of a cycle of efficacy within companies. Theoretically, companies go through different twists and turns of events that could influence their efficacy levels. Establishing those incidents could lead to predictability in the research. What knocks companies off course? What brings them back?

References

Ancona, D., & Bresman, H. (2007). *X-teams: How to build teams that lead, innovate, and succeed*. Boston: Harvard Business School Press.

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117–148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.

Bandura, A. (1998). Personal and collective efficacy in human adaptation and change. In J. G. Adair, D. Belangger, & K. L. Dion (Eds.), *Advances in psychological science: Vol. 1. Personal, social and cultural aspects*. Hove, United Kingdom: UK Psychology Press.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*, 75–78.

Beer, M., Eisenstat, R., & Spector, B. (1990, November–December). Why change programs don't produce change. *Harvard Business Review,* pp. 158–166.

Bollen, K. A., & Long, J. S. (1993). *Testing structural equation models*. Newbury Park, CA: Sage.

Brewer, M., & Gardner, W. (1996). Who is this "we"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology, 71*(1), 83–93.

Buckingham, M., & Coffmann, C. (1999). *First, break all the rules. What the world's greatest managers do differently*. New York: Simon & Schuster.

Busi, M., & Bititci, U. (2006). Collaborative performance management: Present gaps and future research. *International Journal of Productivity and Performance Management, 55*(1/2), 7–25.

Collins, J. (2001). *Good to great: Why some companies make the leap . . . and others don't*. New York: HarperBusiness.

Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. Fort Worth, TX: Harcourt Brace Jovanovich.

Coutu, D. (2003) How resilience works, in *Building personal and organizational resilience*, 1–18. Harvard Business Review Paperback Series. Boston: Harvard Business School Publishing Company.

Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. New York: Wiley.

Eby, L., Freeman, D., Rush, M., & Charles, B. (1999). Motivational bases of affective organizational commitment: A partial test of an integrative model. *Journal of Occupational and Social Psychology, 72*(4), 463–489.

Edwards, J., Thomas, M., Rosenfeld, P., & Booth-Kewley, S. (1997). *How to conduct organizational surveys: A step-by-step guide*. London: Sage.

Fernández-Ballesteros, R., Díez-Nicolás, J., Caprara, G., Barbanelli, C., & Bandura, A. (2002). Determinants and structural relation of personal efficacy to collective efficacy. *Applied Psychology: An International Review, 51*(1), 107–125.

French, W., & Bell, C.H., Jr. (1999). *Organization development: Behavioral science interventions for organizational improvement*. Upper Saddle River, NJ: Prentice Hall.

Gist, M. (1987). Self-efficacy: Implications for organizational behavior and human resource management. *Academy of Management Review, 12*(3), 472–485.

Goddard, R., Hoy, W., & Woolfolk-Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*(2), 479–597.

Goddard, R., Hoy, W., & Woolfolk-Hoy, A. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher, 33*(3), 3–13.

Gully, S., Incalcaterra, K., Joshi, A., & Beaubien, M. (2002). A meta-analysis of team efficacy, potency, and performance: Interdependence and level of analysis as moderators of observed relationships. *Journal of Applied Psychology, 87*(5), 819–832.

Guttman, H. M. (2008). *Great business teams: Cracking the code for standout performance*. San Francisco: Wiley.

Hodges, L., & Carron, A. (1992). Collective efficacy and group performance. *International Journal of Sport Psychology, 23*, 48–59.

Howell, W., & Dipboye, R. (1982). *Essentials of industrial and organizational psychology*. Homewood, IL: Dorsey Press.

Jackson, C., Wesson, M., Colquit, J., & Zepata-Phelan, C. (2006). Psychological collectivism: A measurement validation and linkage to group member performance. *Journal of Applied Psychology, 91*(4), 884–899.

Jackson, D. N. (1971). The dynamics of structured personality tests. *Psychological Review, 46*, 1079–1096.

Jackson, D. N., & Paunonen, S. V. (1980). Personality structure and assessment. *Annual Review of Psychology, 31*, 508–552.

Judge, T., Bono, J., Thoresen, C., & Patton, C. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127*(3), 376–407.

Katz, D., & Kahn, R. (1978). *The social psychology of organizations*. New York: Wiley.

Kopelman, R., Brief, A., & Guzzo, R. (1990). The role of climate and culture in productivity. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 282–318). San Francisco: Jossey-Bass.

Kotter, J., & Heskett, J. (1992). *Corporate culture and performance*. New York: Macmillan.

Kotter, J. P. (1996). *Leading change*. Boston: Harvard Business School Press.

Kozub, S., & McDonnell, J. (2000). Exploring the relationship between cohesion and collective efficacy in teams. *Journal of Sport Behavior, 23*(2), 120–129.

Kraut, A. (1996). *Organizational surveys: Tools for assessment and change*. San Francisco: Jossey-Bass.

Labovitz, G., & Rosansky, V. (1997). *The power of alignment: How great companies stay centered and accomplish ordinary things*. New York: Wiley.

Larson, C., & LaFasto, F. J. J. (1989). *Teamwork: What must go right; what can go wrong*. Newbury Park, CA: Sage.

Lau, V., Shaffer, M. A., & Au, K. (2007). Entrepreneurial career success from a Chinese perspective: Conceptualization, operationalization, and validation. *Journal of International Business Studies, 38*, 126–146.

Lindsley, D., Brass, D., & Thomas, J. (1995). Efficacy-performance spirals: A multilevel perspective. *Academy of Management Review, 20*(3), 645–675.

Maddux, J. (1995). Self-efficacy theory: An introduction. In J. Maddux (Ed.), *Self-efficacy, adaptation and adjustment: Theory, research and application* (pp. 3–33). New York: Plenum Press.

McLean, G., Yang, B., Min-Hsun, C., Tolbert, A., & Larkin, C. (2005). Development and initial validation of an instrument measuring managerial coaching skill. *Human Resource Development Quarterly, 16*(2), 157–178.

Organ, D. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.

Parker, L. (1994). Working together: Perceived self and collective efficacy at the workplace. *Journal of Applied Social Psychology, 24*(1), 43–59.

Pierce, J., Gardner, D., Cummings, L., & Dunham, R. (1989). Organization based self-esteem: Construct definition, measurement, and validation. *Academy of Management Journal, 32*(3), 622–648.

Pollock, P. H. (1983). The participatory consequences of internal and external political efficacy: A research note. *Western Political Quarterly, 36*(3), 400–409.

Riggs, M., Warka, J., Babasa, B., Betancourt, R., & Hooker, S. (1994). Development and validation of self-efficacy and outcome expectancy scales for job-related applications. *Educational and Psychological Measurement, 54*(3), 793–802.

Robbins, S. (1998). *Organizational behavior: Concepts, controversies, applications*. Upper Saddle River, NJ: Prentice-Hall.

Ryan, K., & Oestrich, D. (1998). *Driving fear out of the workplace*. San Francisco: Jossey-Bass.

Sampson, R. J., Randenbusch, S. W., & Earls, F. (1998). Reducing violence through neighborhood efficacy. *Alternatives to Incarceration, 4*(4), 18–20.

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (eds.), *Measures in Health Psychology: A User's Portfolio. Causal and Control Beliefs*. Windsor, United Kingdom: NFER-NELSON.

Schwarzer, R., Schmitz, G., & Daytner, G. (1999). *Collective teacher self-efficacy*. Retrieved from http://userpage.fu-berlin.de/~health/teacher_se.htm.

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Currency-Doubleday.

Shamir, B. (1990). Calculations, values and identities: The sources of collectivistic work motivation. *Human Relations, 43*(4), 313–332.

Shea, G., & Guzzo, R. (1987, Spring). Group effectiveness: What really matters? *Sloan Management Review*, pp. 25–31.

Silvester, J., Anderson, N., & Patterson, F. (1999). Organizational culture analysis: An inter-group attributional analysis. *Journal of Occupational and Organizational Psychology*, 72, 1–23.

Spink, K. (1990). Group cohesion and collective efficacy of volleyball teams. *Journal of Sport and Exercise Physiology, 12*, 301–311.

Steers, R. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly, 22*, 46–56.

Szabala, D. (2007). A multidimensional view of resistance to organizational change: Exploring cognitive, emotional and intentional responses to planned change across perceived leadership strategies. *Human Resource Development Quarterly*, *18*(4), 525–558.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). New York: Allyn and Bacon.

Tajfel, H. (1978). Social categorization, social identity, and social comparison. In H. Tajfel (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations* (pp. 61–76). London: Academic Press.

Tasa, K., Taggar, S., & Seijts, G. (2007). The development of collective efficacy in teams: A multilevel and longitudinal perspective. *Journal of Applied Psychology, 92*(1), 17–27.

Weintraub, A., & Tirrell, M. (2010, March 8). Eli Lilly's drug assembly line. *Bloomberg Businessweek*. pp. 56–57.

Wood, R., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making skills. *Journal of Personality and Social Psychology, 56*(3), 407–415.

Yang, B., Cervero, R., Valentine, T., & Benson, J. (1998). Development and validation of an instrument to measure adult educators' power and influence tactics in program planning practice. *Adult Education Quarterly, 48*(4), 227–244.

Zaccaro, S., Blair, V., Peterson, C., & Zazanis, M. (1995). Collective efficacy. In J. Maddux (Ed.), *Self-efficacy, adaptation and adjustment: Theory, research and application* (pp. 305–327). New York: Plenum Press.

James G. Bohn is a researcher intrigued by applications of efficacy theory in organizational settings. He has over 35 years' experience in the business world, including change management, best business practice, and operations.