

Action Research as a Burnout Intervention

Reducing Burnout in the Federal Fire Service

Jonathon R. B. Halbesleben

University of Missouri, Columbia

Holly K. Osburn

Michael D. Mumford

University of Oklahoma

Despite a rapidly growing body of work on the nature of stress and burnout in organizations, relatively little research has been conducted to develop strategies for reducing burnout. In this article, we discuss collaborative action research as a mechanism for the reduction of burnout. The authors demonstrate the efficacy of this approach in the context of a federal fire department. Findings suggest that action research has potential as a mechanism for the reduction of burnout, particularly because it is a more holistic approach that can be tailored to fit the needs of an organization.

Keywords: burnout; action research; intervention; firefighters; evaluation

Burnout has become an important element of organizational reality for workers worldwide. Stress and burnout account for about 300 million lost working days and cost American businesses an estimated \$300 billion per year (American Institute of

This article was supported by a contract with the U.S. Department of Defense. A version of this article was presented at the 2003 meeting of the American Psychological Society in New Orleans, Louisiana. The authors would like to thank Pete Girillo, Tom Trello, Jorge Mendoza, Jenn Becker, and Matt Bivona for their assistance with this research.

Jonathon R. B. Halbesleben (PhD, University of Oklahoma) is a research assistant professor in the Department of Health Management and Informatics at the University of Missouri, Columbia. His research interests concern stress and burnout, work/family issues, and health care management.

THE JOURNAL OF APPLIED BEHAVIORAL SCIENCE, Vol. 42 No. 2, June 2006 244-266

DOI: 10.1177/0021886305285031

© 2006 NTL Institute

244

Stress, 2002). Despite the pervasive nature of burnout as a costly organizational problem, there has been relatively little research dedicated to presenting and particularly evaluating interventions designed to reduce burnout (Halbesleben & Buckley, 2004; Maslach, Leiter, & Schaufeli, 2001).

The purpose of this article is to highlight the efficacy of action research in advancing our understanding of the organizational phenomenon of burnout, particularly in terms of reducing burnout. To support this objective, we describe the action research process in the context of a burnout reduction intervention staged at a federal fire department on a United States military installation. Specifically, we discuss the process by which we engaged in action research to develop a burnout intervention program, the effectiveness of the program vis-à-vis data from a 1-year follow-up with the organization, and the resultant contribution to the burnout literature in terms of intervention. Prior to discussion of the specific approach we took in using action research, it is germane to briefly consider the nature of burnout and previous attempts to develop intervention programs for burnout reduction.

BURNOUT INTERVENTION PROGRAMS

Burnout is defined as a psychological response to chronic work stress characterized by emotional exhaustion (a depletion of emotional and physical resources), disengagement (detachment from the job), and reduced feelings of personal job-related efficacy (Maslach, 1982).¹ Burnout is typically a response to long-term exposure to work stressors. There have been two primary approaches to intervention programs to reduce burnout: trying to change individual employees and trying to change the organization. Programs that seek to change individuals have been more prominent both in research and in practice, perhaps because of a belief that burnout is caused by personal issues or an assumption that it is easier to change individuals than to change an organization (Maslach & Goldberg, 1998). These programs seek to develop coping skills in the employee that will help them to deal with the stress that is leading to burnout. Programs have been developed to train individuals in a variety of techniques, including interpersonal and social skills (Concoran & Bryce, 1983), stress inoculation (West, Horan, & Games, 1984), assertiveness training (Higgins, 1986), and time management (Pines & Aronson, 1988).

The evaluation of these programs has been mixed. These programs occasionally lead to reductions in emotional exhaustion but rarely have any effect on disengagement or perceptions of personal efficacy (Freedy & Hobfoll, 1994; Schaufeli, 1995). Moreover, the evaluation of these programs is confounded by limitations in research methods used to evaluate them (e.g., Brown, 1984). As noted by Carwright and Co-

Holly K. Osburn (PhD, University of Oklahoma) is a research scientist for the Center for Applied Social Research at the University of Oklahoma. Her research interests focus on planning, training, and job analysis.

Michael D. Mumford (PhD, University of Georgia) is a George Lynn Cross Distinguished Professor of Psychology at the University of Oklahoma, where he also serves as director of the Center for Applied Social Research.

per (2005), an additional concern is that these programs do “little to change environmental stressors” (p. 618) and as such, do not address the underlying cause of the burnout and subsequently do little to actually reduce burnout itself. A more promising approach to the reduction of burnout has been to attempt to make changes to the environment in which the employees work (Golembiewski & Boss, 1992; Golembiewski, Munzenrider, & Stevenson, 1986; Maslach et al., 2001) as changing the environment has a better chance of relieving stress and burnout for employees on a more widespread basis.²

A number of programs of this nature has been presented, with some accompanying evaluation evidence to support their effectiveness. Van Dierendonck, Schaufeli, and Buunk (1998) developed a group-based intervention program that focused on reducing burnout by adjusting employees’ goals and expectations to match the actual work environment, with evidence that it was effective in reducing burnout.

However, perhaps the most significant limitation of burnout reduction programs is that they tend to seek out universal solutions for organizational issues without offering taking into account the significant variety of stressors that may lead to burnout and the uniqueness of stressors that appear in any one organization. Clearly, many of the stressors that appear in one organization may not either appear in another organization or have the same impact. For example, whereas the Van Dierendonck et al. (1998) intervention program was successful with their employee sample, it would not be as effective in an employee population whose expectations do not deviate from their work setting. What is needed is a framework that does not include universal solutions for burnout but one that helps determine the specific causes of burnout in a specific organization and allows organizational stakeholders to develop interventions based on those organization-specific causes of burnout. We argue that action research offers such a methodology and demonstrate how it can be applied in organizations to address burnout.

The Action Research Framework

Action research is an empirical and reflective process by which traditional research participants are engaged in a participative fashion to work toward a positive, practical outcome (Stringer, 1999). The goal of action research is to integrate theory with practice whereby theory carefully informs practice, which in turn can alter theory (McNiff, 2000, 2002). Action research can be seen as cornerstone in organization development and management consulting (Burke, 1994; Frohman, Sashkin, & Kavanagh, 1976; Rothwell, Sullivan, & McLean, 1995), and it has seen a significant resurgence in organizational theory and research (cf., Coughlan & Coughlan, 2002; Eden & Huxham, 1996; McNiff, 2000; Reason & Bradbury, 2001a).

Action research differs from more traditional empirical research paradigms in that it conducts research with participants rather than on participants (Reason & Bradbury, 2001b). There are a variety of action research procedures that have been adopted by researchers (cf. Reason & Bradbury, 2001a). Given the issues of concern for this organization, we chose to engage in an action research method that is based on a process suggested by Bruce and Wyman (1998) for organization development.

We chose an action research approach for the present study for a variety of reasons. First, the outcomes of action research involve both addressing significant organizational issues (in this case, burnout) while advancing knowledge (Coughlan & Coughlan, 2002). As such, action research held the potential to advance our understanding of burnout in a more holistic manner while simultaneously working toward the amelioration of burnout among employees. Second, action research involves greater participation between and among researchers and employees, which we saw as an important step in reducing burnout by developing improved communication and social support systems. Third, action research has shown utility in addressing similar issues (e.g., Landsbergis & Vivona-Vaughan, 1995; Pasmore & Friedlander, 1982) in somewhat similar organizational contexts (e.g., unionized; Heaney et al., 1993). In fact, Golembiewski et al. (1986) specifically recommended action research approaches for dealing with burnout because it allows employees with a history together to work toward solving problems specific to their own stressful environment.

DATA COLLECTION AND RESULTS

The study we conducted occurred in the context of a fire department on a United States military installation. The study was conducted because of significant problems with stress and burnout among the employees at all levels that had led to problems with workplace violence (including suicidal intentions and threats to coworkers and supervisors), absenteeism, and turnover. As a result, the management team and union representatives together sought assistance from outside sources, including the base psychological clinic. We became involved in the project at the suggestion of a counselor on the base. In the next section, we discuss the specific action research procedures that we employed, including the results of those procedures.

Orientation and Contract

The orientation phase of action research involves the initial collection of data from the organization, including the current situation and future goals (Bruce & Wyman, 1998). In the context of the present study, our orientation occurred as we discussed the issues facing the organization with significant organizational stakeholders, with an attempt to discern potential directions for alleviating the burnout experienced by the employees. We held meetings with the chief of the department, the union president, and a clinical psychologist that had worked with the fire department employees on the military facility.

The orientation allowed us to gather some basic information about the context of the organization. The organization was a United States federal fire department that employs 95 civilian firefighters, management, and administrative staff. Approximately 90% of the employees of the fire department were formerly military fire protection personnel; the department employed only two women. The department is structured around three fire stations, one of which is the main station that also houses

administration, fire prevention officers, and the dispatch personnel. Most of the employees (with the exception of top management) work 72-hour workweeks, whereby they work 24-hour shifts every other day with one 24-hour shift off per 2 weeks. They are organized into two shifts, red and blue, that are responsible for the department on alternating days. The top management staff works 60-hour workweeks, working regular 8-hour shifts 4 days a week and one 24-hour shift per week.

The contract phase involves developing expectations about how action research works and helping employees to become more open to social change (Bruce & Wyman, 1998). This took a number of forms in the present study. Throughout the project, we made significant attempts to build credibility and rapport with the employees of the organization to help develop their trust in us and in each other. We held meetings with all of the employees of the organization on each of the two shifts to discuss the project. During those meetings, we outlined our goals for the project and asked the employees to provide feedback regarding what they hoped would come from the project. We worked with the employees to develop expectations about the outcomes of the project, its time frame, and the manner in which we would work together to improve the organization. Building trust and rapport during the contract phase was critical to avoid psychological reactance to us as consultants and begin to foster a collaborative work environment (cf. Vangen & Huxham, 2003).

Reconnaissance

The reconnaissance phase involves deeply exploring issues in the organization (Bruce & Wyman, 1998; Lewin, 1946). We used the following four techniques to explore the issues in this phase: a review of the literature, observations, interviews, and survey data collection. As we progressed through this phase, we adopted a traditional action research technique whereby we collected information (from the observations, interviews, and surveys) and compared it to current literature in an iterative fashion to develop a model for the experience of burnout in the organization. Collecting data from multiple sources of information allowed us to merge data from different vantage points to provide a more complete view of the context within the department.

Observations. As an initial step in data collection, we spent 90 days conducting observations. The objective of the observations was collecting information about working conditions, social interactions/group dynamics, possible stressors, and other information about what concerns faced the employees of the organization and what they were doing to address those concerns. We spent a total of 200 hours conducting observations in the department. Included in the observations were two 24-hour shift observations and one 12-hour shift (7 a.m. to 7 p.m.) by the first author.

A number of themes emerged from the observations. We have classified them into more broad themes based on stressors, burnout symptoms, and consequences of burnout. A significant stressor was uncertainty related to their jobs. Much of this uncertainty centered on the daily schedule. As one firefighter commented, "We have roll call every morning at 0700 where we find out what we are doing for the day. By 0715, everything has changed." Given that the nature of the firefighting job is inherently

uncertain, uncertainties about regularly scheduled items, such as training exercises, were particularly frustrating for the workers.

Another notable stressor came from a perception of politics in the department, particularly as they related to human resources decisions. A number of employees complained about the performance appraisal and promotion systems, suggesting that they were intentionally manipulated to support a “good old boys” system. These political tensions were exacerbated by perceptions that their supervisors were undeservedly promoted, which led to a lack of trust in and support of management that was manifest by a lack of communication between management and employees.

We also observed clear manifestations of burnout. For example, we observed emotional exhaustion among workers; it was common to hear about how employees were “worn out with this job,” “emotionally drained from work,” or “not provided as much in terms of [emotional] rewards as [the employees] put into the job.” Disengagement was observed as a number of workers claimed they were just “doing their time” and “counting the days until retirement.” Finally, we observed some evidence of reduced personal efficacy as employees believed they were not as good at their jobs as they once were, in part because of concerns with training.

A potential consequence of burnout was also clear during our observations. Turnover had been historically high in the department, and in the time we conducted observations, two additional employees left. In talking with the employees that departed, both mentioned that they were frustrated with how the department operated, the political environment, the stressful environment, and how their expectations about the job had not been met. Moreover, both left because they believed they had a better chance of being promoted on their new job.

Interviews. As a second data collection step, we conducted 80 semistructured interviews, including employees of all functional areas of the department. A number of interesting themes emerged from the interviews. First, our observations with regard to uncertainty and politics were confirmed. The employees discussed these issues, often without being directly asked about them. However, we were able to discover more about the dynamics of these issues. For example, we were able to get a clearer picture about how specific human resources decisions, particularly those related to performance appraisal and promotions, held a particularly political tone.

Social support emerged as a significant issue during the interviews as well. There was a general feeling that the employees were not offered much support from their supervisors, higher management, and the community at large. As one example, many of the firefighters commented that top management had made comments like “Your morale is not my problem” and “You can check your morale at the [base] gate . . . it’s not important here.” Moreover, they perceived that management sought to control them, and that was why management had taken away activities like athletic events and disallowed the firefighter’s combat challenge (a nationwide interdepartment competition designed to showcase firefighting skills).

Unmet expectations about the job were another area of concern, particularly with regard to advancement opportunities in the department. The department did not offer any type of formal socialization program to help manage expectations about the job

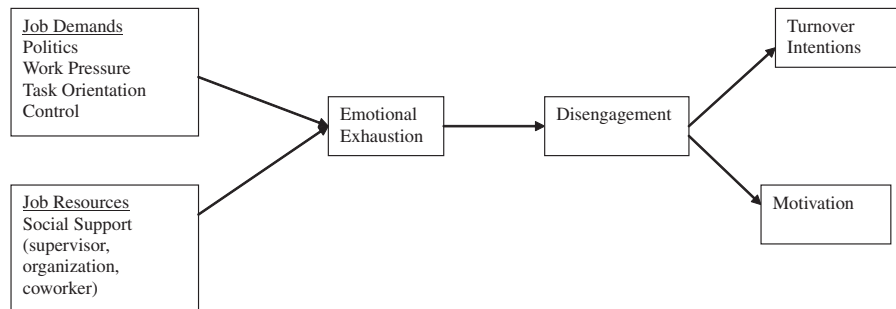


FIGURE 1: Emergent Model of Burnout Used to Guide Intervention Development.

prior to beginning work. As an example of this issue, a number of employees discussed their disappointment with going many years without a promotion or advancement opportunity. They had come to the job with the expectation that promotion would be a possibility within a relatively short time frame (5 years) but found that it often took much longer (as many as 20 years) to receive a promotion.

With regard to outcomes of burnout, we continued to see issues of turnover intentions. When asked if they were considering leaving the department, approximately one half of the employees (albeit, none of the management team) indicated that they were thinking of leaving. An additional one fourth of the employees indicated that they would like to leave but were tied to the job for external reasons (e.g., their family is from the area). Many indicated that they would rather work in a municipal (city) fire department, but the pay would be lower.

At this point, we also considered the potential role of job satisfaction. When asked about how they felt about their work, it was common for the employees to indicate that they loved the profession and particularly liked their job when they were on emergency runs. Although many of the employees had concerns about the organization, many who had worked on other military bases noted that it was among the best military installations to work on.

Upon reflection, we began to see a clearer picture of the situation in the department that was consistent with and extended the literature. Politics, uncertainty, lack of support, unmet expectations, control, and rigidity were emerging as important demands that contributed to burnout. Moreover, the employees seemed to be missing job resources (e.g., social support) that would help them to address burnout (cf. Hobfoll, 2001). We combined these notions into an emergent working model of burnout that we used to guide the development of our intervention program (see Figure 1).

In considering the model in relation to the extant burnout literature, we find that the model is consistent with the model put forth by Demerouti, Bakker, Nachreiner, and Schaufeli (2001). In their job demands-resources model of burnout, they proposed that burnout is the result of two categories of work characteristics. Job demands are those aspects of the job that require effort and as a result are associated with psychological

costs (in our case, burnout). On the other hand, job resources are characteristics of the job that assist in achieving work goals, diminish the demands of the job, or lead to personal growth. As displayed in Figure 1, the model that emerged from the observations and interviews suggests that indeed job demand and job resource variables appear to be associated with the burnout experienced by the fire department employees.

Surveys. Nadler (1977) suggested that survey feedback can be useful in driving action research projects. To have benchmarks from which we could determine the success of our intervention program, we collected a variety of quantitative measures. The surveys were administered to all employees of the fire department during regular working hours and were completed on a voluntary basis. A total of 83 complete surveys (response rate of 87%) were returned. The descriptive statistics for the surveys used can be found in Table 1.

To assess burnout, we used the exhaustion and disengagement subscales of the Maslach Burnout Inventory–General Survey (MBI-GS; Maslach, Jackson, & Leiter, 1996). The MBI-GS is the most commonly used measure of burnout dimensions in the burnout literature. The mean score of 3.11 ($SD = 1.16$) indicated that the employees of the department experienced relatively high levels of exhaustion, particularly when compared to the norms for the MBI-GS provided by Maslach et al. (1996) from their sample of 3,727 North American workers in a variety of occupations. We used only the exhaustion and disengagement subscales following suggestions in the literature that they form the “core” of burnout and because of noted concerns with the personal efficacy scale (Lee & Ashforth, 1996; Moore, 2000; Shirom, 2003). To examine another marker of program success, we also measured turnover intention using the three-item scale of Mitchell, Holton, Lee, Soblynski, and Erez (2001). All of these scales were measured on 5-point, Likert-type scales from *strongly disagree* (1) to *strongly agree* (5).

The reconnaissance phase of the project allowed us to draw conclusions about the causes of burnout within the organization, specifically that high demands and low resources were significant contributors. It became apparent that interventions would need to be developed around the issues of demands and resources. This information allowed us to proceed with determining the potential options for intervention within the organization.

INTERVENTION DESIGN, IMPLEMENTATION, AND EVALUATION

Problem and Opportunity Identification

In the problem and opportunity identification phase, we worked together with the employees to develop the specific problems within the situation and the manner in which they might be addressed. This was done on an informal basis with the employees and management as we conducted the observations and interviews. We often asked them how they might change the department for the better and what they saw as the key issues to be addressed in the department.

TABLE 1
Study Means, Standard Deviations, Reliabilities, and Interscale Correlations

Scale	n	M	SD	1	2	3	4	5	6	7
1. Exhaustion (Time 1)	83	3.11	1.16	.92						
2. Disengagement (Time 1)	83	3.12	1.06	.87	.87					
3. Turnover intent (Time 1)	83	2.57	1.39	-.24	.45	.97				
4. Exhaustion (Time 2)	65	2.79	1.12	.20	.19	.28	.92			
5. Disengagement (Time 2)	65	2.93	0.95	.12	.06	.28	.79	.79		
6. Turnover intent (Time 2)	65	2.56	1.38	.18	.34	.59	.56	.59	.95	
7. Perceptions of changes in department (Time 2)	65	2.91	0.91	.00	.01	-.68	-.60	-.68	-.48	.92

NOTE: Entries along the diagonal are reliability estimates (Cronbach's alpha). Correlations above .26 are statistically significant at $p < .05$, correlations above .36 are statistically significant at $p < .01$.

We also worked through these issues with the top two managers in a formal meeting. During the meeting, we presented them with a brief summary of the reconnaissance phase as well as recommendations derived by the employees and ourselves. Together, we had a very frank discussion about the issues and the feasibility of the possible solutions, including ways in which they could be improved to have a greater positive impact.

The result of these discussions was a list of the largest potential causes for concern in the organization. Generally speaking, these included low perceived social support, perceptions of politics, intergroup conflicts between management and workers, role stressors such as uncertainty and lack of communication, and unmet expectations (particularly with regard to advancement; see Table 2). These were consistent with the model of burnout that we had derived from observation and interviews and tested with the surveys; job demands and lack of resources were areas of greatest concern and represented the areas of significant opportunity for intervention.

Analysis of Strategic Action Options/Experiment/Test Results

According to Bruce and Wyman (1998), once the correct culture is in place, one should analyze strategic options, test them out on the workforce (experiment), and analyze the results of that test. In our case, we have modified these three phases into one phase whereby we conducted discussion sections with the fire department staff. The 90-minute sessions were held at each station on each shift and included those employees who wanted to provide more feedback.³ In each session, we discussed four to five major issues facing the workers; data from the observations, interviews, and surveys to support each issue; and potential solutions regarding those issues. The participants were then encouraged to discuss the issues and solutions, with particular emphasis on the feasibility of the solutions, whether they thought the solutions would address the issue, and how the solutions might be specifically implemented.

We also conducted sessions with the managers that were very similar to the discussion sessions just described. They involved presenting the managers with selected issues and recommendations from this project to get their feedback and guide the development of the final recommendations. We also specifically worked to develop a time frame for implementation of the recommendations.

Broadly speaking, the discussion sessions confirmed our conclusions about the issues of importance and supported many of the solutions. They allowed us to revise the solutions to make them more feasible and gave us specific information about how the solutions might be specifically implemented to maximize their success.

Program Design and Implementation

The objective of this phase is to develop and implement a formal organizational plan that will address the issues illuminated in the previous steps. Based on the observations, interviews, surveys, and workout sessions, we were able to develop a number of recommendations to help shape the environment of the organization. Overall, we developed a variety of strategies with the employees that took a step-wise approach to

TABLE 2
Program Design

<i>Potential Cause of Burnout</i>	<i>Proposed Intervention(s)</i>	<i>Literature Base</i>	<i>Time Frame</i>
Low social support	Management multisource feedback program: Using the Skillscope multisource feedback program provided developmental feedback based on information from supervisor, coworkers, self, and subordinates. Intended to increase support of employees through self-awareness and developmental goals set to address concerns raised by feedback sources. Increased department-sponsored social events, external chaplain service, increased community service; Based on the notion that social support is associated with reduced burnout. Intended to increase social support from a variety of sources, including coworkers, family, and outside entities.	Antonioni (1996) Baruch-Feldman, Brondolo, Ben-Dayan, and Schwartz (2002)	Initiated/Immediate Short term
Perceptions of politics	Management multisource feedback program: See aforementioned description, intended to reduce burnout associated with perceptions of politics through self-awareness that others perceived politics. Plan to address perceptions of justice and politics in performance appraisal and promotions: Intended to reduce burnout associated with perceptions of politics by developing policies to specifically avoid political decision making, in turn increasing fairness/justice perceptions.	Antonioni (1996) Ferris and King (1991)	Immediate Long-term
Group dynamics/interpersonal conflict	Renewal of organizational mission: Project where employees came together to develop a new mission for the organization through collaborative contributions. Intended to bring management and workers together by providing an activity with a superordinate goal. Intended to reduce burnout by reducing interpersonal conflict and adding a stronger sense of meaning to the employees.	In-group/out-group literature (e.g., Sheriff, 1958)	Complete
Role stress (uncertainty, ambiguity, conflict, and overload)	Monthly all-hands meetings; more careful management of daily schedule; increase administrative support staff: Intended to reduce role stressors associated with burnout over the long run. Monthly meetings allow for improved communication and reductions in uncertainty and ambiguity. More careful management of daily schedule intended to help alleviate uncertainty, particularly during downtimes between emergency runs. Increase in administrative staff intended to address role overload of management staff, allowing them to provide more support to employees in other areas.	Miller, Ellis, and Zook (1990)	Immediate; Immediate; Short term
Unmet expectations	Realistic job previews: Intended to address unmet expectations that are associated with burnout. Would provide more clear expectations regarding work roles, allowing workers who perceived that they do not fit to self-select out prior to joining the organization.	Wanous (1992)	Immediate

addressing the issues facing the organization. Understanding that this would be a long-term endeavor for the department, we worked with the managers and union members to develop a reasonable time frame for the projects. In Table 2 we have organized the proposed interventions based on the specific burnout issues they are meant to address, including the organizational/psychological literature they are based on and their time frame within the fire department.

Management training (multisource feedback). As is noted in Table 2, we believed that management training would help to address a number of critical issues in the department, including facilitating better social support, reducing perceptions of politics, and reducing role stress. We believed that a starting point for the management training would be multisource feedback. The rationale for this intervention was that the lack of training and communication between managers and employees was leading to role ambiguity; multisource feedback would assist in developing self-awareness that would reduce role ambiguity and stress. We believed that increasing the self-awareness of managers would facilitate social support and reduce politics to the extent that managers were aware that these were concerns of the employees (Beaton, Johnson, Infield, Ollis, & Bond, 2001; Theorell, Emdad, Arnetz, & Weingarten, 2001); given the relationships between supervisor support and burnout (Halbesleben, in press), we felt this would be beneficial in addressing burnout. The multisource feedback system provided a formal, anonymous manner in which employees could voice their concerns. Moreover, multisource feedback systems set the stage for continual feedback processes in organizations (Antonioni, 1996), which we believed would be a positive outcome that would support our goals with the action research program.

Our multisource feedback development with the managers was based on the Skillscope multisource feedback program, available through the Center for Creative Leadership. Each supervisor was provided a feedback report that provided details about the feedback as well as a planning guide that helped each supervisor create an action plan to capitalize on their strengths and address areas that need development. We conducted two management feedback sessions, which allowed us to report the findings of the Skillscope surveys to the managers as well as develop goals and action plans so that they can improve their management skills.

The managers recognized that the multisource feedback was only the first step in long-term development. As part of the action plans, the managers developed more specific development goals. For many, this included further management training outside of the department (e.g., college courses, seminars offered by the military).

Renewal of mission. In addition to providing the managers with feedback, we also encouraged the top management (based on suggestions by some of the employees) to hold sessions with all of the employees of the organization to develop a new mission statement. Our rationale for this was that the organization needed to develop a better sense of purpose, one that included the cooperative and supportive culture that could help address the stressors in the organization. Maslach et al. (2001) suggested that a positive mission that addresses the quality of work life can reduce burnout by clarifying role expectations.

Moreover, exercises such as this one can lead to reduced intergroup conflict, such as the conflict that had developed between the managers and employees in the present setting. Sherif (1958) suggested that engaging conflicting groups in activities that satisfy superordinate goals can help to reduce conflict; research has confirmed that such exercises generalize to organizations to reduce conflict by building trust and cooperation (Campbell, 1989; Hunger & Stern, 1976).

The employees conducted two sessions (one for each shift on consecutive days). As a group, each shift developed a new mission for the department. Once each shift had developed the mission, they elected representatives to meet to come up with a consensus mission for the department. In actuality, the two missions were very similar, and a consensus was reached very quickly among the elected representatives. About 1 week following the original sessions, the mission was printed on a large poster, and each employee was allowed to sign the mission at a celebration; the goal of the signing celebration was to allow each person to lend his or her individual support to the mission as well as celebrate a shift in the culture of the organization.

Whereas the mission statement exercise was appropriate for the present research setting, other collaborative tasks may be suitable depending on the situation. The action research paradigm would suggest allowing those tasks to emerge from the situation. For example, although it is based on the research literature, it was actually an employee of the department that suggested that a new mission was in order. The key is to look for tasks that support overarching goals, often strategic in nature, and bring together the workforce to work toward developing those goals and plans that can be used to guide the organization toward satisfying them. Examples of such tasks might include new product/project development, exercises that help to integrate department-level goals and strategies with organizational-level strategies, or group-based problem-solving efforts that target other superordinate goals of the organization.

Other interventions. In addition to the two initial interventions, a number of other interventions were designed for future implementation based on other concerns faced by the organization. We have summarized these in Table 2. Because social support emerged as an important factor in the fire department, we designed a number of interventions based on suggestions from the employees of the department. We recognized that social support from a variety of sources is key to reducing burnout (Baruch-Feldman, Brondolo, Ben-Dayan, & Schwartz, 2002). To address coworker and perceived organizational support, we recommended an increase in department-sponsored social events (e.g., barbecues, holiday dinners, athletic events), particularly those that involved family (Carlson & Perrewé, 1999). Moreover, as community presence and support appeared to be a concern to the employees, we recommended they spend more time out in the community, particularly interacting with other groups on the base, through fire prevention programs like building walkthroughs. Finally, we recommended expanded external chaplain service to give the employees more options for counseling to address specific problems they face. Although they currently had two employees designated as chaplains, we recommended a more clear relationship with the base chaplain's office to allow for more counseling and support.

In addition to support, we recognized that role stressors such as uncertainty, ambiguity, conflict, and overload were potential problems. To address these changes, we recommended a variety of interventions aimed at both interpersonal and job design components of role stress. For example, we recommended increasing communication through monthly staff meetings (called all-hands meetings by the department) that would allow them to voice continued concerns and help resolve inconsistencies in information flow throughout the department that had led to stress and burnout (Miller, Ellis, & Zook, 1990). Moreover, we recommended more careful management of the daily schedule to eliminate issues of uncertainty that the employees commonly faced. Although the department posted a schedule for each day that included training activities and other tasks to be completed, the primary problem was sticking to that schedule. Both the management team and the employees agreed to make a stronger effort to follow the schedule each day, making exceptions only for emergency runs. Finally, to address overload issues, we recommended an increase in administrative support staff that could help managers with the tremendous amount of paperwork they were required to file each day (e.g., incident reports for each emergency call). Assistance with those tasks would allow them to spend more time in support roles for their regular employees and assist in efforts with schedule management.

Finally, we suggested a number of changes to human resource practices to help address both political concerns and unmet expectations. For example, we suggested that the managers and employees come together to develop a long-term plan to address perceptions of politics in performance appraisal and promotions, with the goal of making those processes more transparent (Ferris & King, 1991). Moreover, we recommended the organization institute realistic job previews to help bring the expectations of incoming employees closer to what they could realistically expect on the job (Wanous, 1992). Although these further intervention recommendations have not yet been evaluated, they provide guidance for the future of the organization in its continued development.

Program Evaluation

A hallmark of an action research program is evaluation of the results of the implementation. Given that the steps proposed could take many years to fully implement, a complete evaluation is simply not feasible at this point. However, 1 year following the conclusion of the project, we conducted a follow-up survey to assess changes in levels of burnout as a result of the interventions. Thus, we attempted to evaluate the effectiveness of the intervention using a one-group, pretest-posttest design (Cook & Campbell, 1979).

We distributed a survey to the employees of the organization 1 year after the conclusion of the project. The survey included the measures of exhaustion, disengagement, and turnover intention used in the original survey. Moreover, we asked specific questions about the changes in the organization over the past year to assess the extent to which the changes at the organization were contributing to the improved levels of burnout (these items are available from the first author). Finally, we asked a series of open-ended questions, including "What changes have you noticed in the past year

(both positive and negative)?” “How has your overall evaluation of your job and department changed over the past year?” and “Do you have any further suggestions for how to improve the department?”

The surveys were completed during normal working hours on a voluntary basis. A total of 65, a retention rate from the previous data collection of 78%, completed surveys were returned to the researchers; all were from employees that had completed the surveys the year prior. Table 1 displays the descriptive statistics of the follow-up survey with the corresponding measures from the first survey. To first test if there were overall changes in exhaustion, disengagement, and turnover intention from Time 1 to Time 2, we conducted Hotelling's T^2 (with a Bonferroni correction) finding that there were significant changes from Time 1 to Time 2, $T^2 = 18.52$; $F(3, 62) = 5.98$; $p = .021$. Given this significant result, we further explored the individual changes across Time 1 and Time 2 in exhaustion, disengagement, and turnover intention.

The surveys indicated that the employees were experiencing significantly less exhaustion 1 year following the completion of the project, $t(64) = 2.48$, $p = .016$; Time 1 exhaustion $M = 3.11$, $SD = 1.16$; Time 2 exhaustion $M = 2.79$, $SD = 1.12$. Moreover, the employees were experiencing significantly less disengagement at Time 2, $t(64) = 2.34$, $p = .022$; Time 1 disengagement $M = 3.12$, $SD = 1.06$; Time 2 disengagement $M = 2.93$, $SD = 0.95$. Interestingly, turnover intention had not significantly changed over the course of the year, $t(64) = .88$, $p = .38$; Time 1 turnover intention $M = 2.57$, $SD = 1.39$; Time 2 turnover intention $M = 2.56$, $SD = 1.38$. Generally speaking, these findings support the initial effectiveness of the action research program, with the recognition that more time than 1 year is needed to more fully evaluate a program designed to make significant changes to a department.

A potential alternative to the conclusion that our intervention program influenced burnout is to argue that the intervention simply increased job satisfaction. Indeed, burnout and job satisfaction are linked, with lower satisfaction typically considered an outcome of burnout (cf. Lee & Ashforth, 1996). Given the presence of a number of interpersonally focused stressors associated with burnout (e.g., lack of social support, politics), we believed that burnout was the primary issue to be addressed through the inventions. This was supported by our findings during interviews in which many employees indicated that they really loved the work they do but were nonetheless exhibiting symptoms of burnout. However, to rule out the possibility that satisfaction was indeed the primary variable of importance, we assessed satisfaction during both Time 1 and Time 2 survey data collections using the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967). We found that from over the course of the year between Time 1 and Time 2, job satisfaction had not significantly changed, $t(64) = 0.11$, $p = .91$; Time 1 satisfaction $M = 3.08$, $SD = 0.79$; Time 2 satisfaction $M = 3.00$, $SD = 0.81$. This finding helps to support our belief that the intervention was indeed lowering burnout rather than influencing satisfaction more generally.

In addition to the quantitative data, we coded the responses to the open-ended survey questions to determine trends in the responses. A theme we discerned was a general observation of positive changes in the department but with progress yet to be made. Employees recognized the changes that had been made to the training program

and the mission focus of the department. There was some recognition of the slow pace of change that is common in these settings.

Overall, the evaluation of the project is viewed favorably. Burnout levels are lower and employees are noticing the positive changes in the department. Although the turnover intentions did not go down, we note that the mean scores were below the midpoint of the scale, suggesting that the employees were not likely to turn over to begin with. Moreover, when discussing actual turnover with the chief of the department, he noted that it had not noticeably increased according to their records.

Re-Cycle

Although we felt confident that our program was successful in addressing the issues facing the employees of the fire department, an important emergent outcome of action research is the process of organizational learning that occurs to facilitate going through the process again to address other problems. Effectively, action researchers seek to train managers to conduct their own action research in the future as necessary (Bartunek, Costa, Dame, & LeLacheur, 2000; Stringer, 1999). We believe we have been successful in instilling adaptive properties to the federal fire department.

This notion is reflected in the manner in which they have treated the project since its completion. Shortly after the project concluded, a volunteer committee of employees and management was created to continually investigate issues associated with the department in light of the project. They serve as change agents in implementing the recommendations derived from the project. The committee has essentially adopted the pattern of action and reflection that was started with this project for the continued improvement of the department using the collaborative principles that guided the original project.

The notion of training employees to continue to serve as change agents is key as it fosters the continual development of the collaborative environment characterized by action research projects (Gardner, 1974). This allows for the constant, gradual adjustment of the environment to maintain a positive atmosphere (Bruce & Wyman, 1998). Organizations seeking to apply this model should recognize a small group of employees who are trusted and respected by their peers to serve as potential change agents. These individuals should be charged with continually seeking feedback from their peers and developing new ideas regarding potential changes to the organization to maintain a positive course. Note that the notion of developing a core group of change agents for continual development is consistent with the notions of organizational learning (Argyris & Schon, 1978) and the utilization of quality circles (Munchus, 1983).

DISCUSSION

The purpose of the present article was to describe the manner in which action research programs can be used to reduce burnout in organizations. Our rationale for employing action research was to use a more general framework for burnout reduction

that could be tailored to address the more specific needs of the organization. Our findings support the notion that action research can be quite effective as a system for designing burnout interventions. In terms of specific interventions, our findings also suggest that renewal of organizational mission can help reduce burnout. Moreover, our findings suggest that addressing human resource functions such as recruitment (through expectations development), training, performance appraisal, and promotion systems can address issues of burnout, particularly as they address stressors such as workload and uncertainty. However, these specific interventions worked because they addressed the issues that the organization was facing; the key is not simply to apply these interventions but to work collaboratively to determine what issues need to be addressed related to burnout (or the specific issue faced by the organization), determine their underlying causes, and work with the organizations to develop interventions that are more likely to be successful.

Implications for Action Research in Addressing Burnout

Our findings confirm that action research is a valuable tool for investigating organizational phenomena, particularly problem areas (McNiff, 2000; Stringer, 1999). Our research extends the research in stress-related intervention programs by discussing a program that includes a longer time frame than has been typically used and more clear effects on strain. Moreover, we have taken steps to link the positive effects on burnout to actual changes in working environment, reducing the possibility that the effects are simply the result of participating in an action research project (Hurrell, 2005).

One of the interesting properties of action research is the involvement of the researcher in the research process. This process is similar to other organizational observation methods, including job analysis observations and ride alongs. Indeed, the objectives of these techniques are similar: to gain firsthand experience that helps to understand the unique dynamics of the working situation. This was important in the present study as it actually allowed us to better understand the root of some of the problems in the organization. For example, by observing on shifts overnight, we had the opportunity to understand the dynamics of being at work in 24-hour shifts, the impact of extended boredom punctuated by brief moments of excitement (when emergencies occur), and the effect of such shifts on family dynamics as they impacted our own families. We also experienced firsthand the instability of schedules that the workers experienced as we found some of our own planned meetings, interviews, and observations disrupted for one reason or another. The key is that we as participants in the organization experienced much of the same stress that was experienced by the workers, albeit to a lesser extent, which was particularly illuminating as we proceeded with the project. This shared experience of stress also helped to strengthen connections to the participants in the study, increasing trust in us as we worked with them to develop intervention techniques. This type of experience would be valuable for future researchers seeking to understand the nature of burnout within organizations within which they are developing interventions. Although this type of involvement may signal a tension between a researcher's dual role as empirical researcher and intervention facilitator, it

may be necessary to develop a successful burnout intervention program using the action research model.

Costs and benefits of action research. Programs to reduce burnout generally represent a significant cost to organizations (Maslach et al., 2001). We believe that action research helps to address this drawback. Although in the present case the program was developed by outside consultant/researchers, that need not always be the case. Action research can be initiated by managers and conducted internally for relatively little cost and potentially great benefit (Bartunek et al., 2000). Moreover, with its focus on long-term collaborative environments, action research has the potential to have an impact that outlasts more traditional approaches and may transcend the employees as they move on to other organizations.

However, we recognize that there are some drawbacks and potential costs to action research. First, although action research that is directly initiated by managers may lead to cost savings that come from contracting out with management consultants, they may need to make such an initial investment to begin the process (as was the case for the present department). Moreover, given that the management team is embedded in a political situation, they may not recognize their role in the problems faced by the situation. In such a setting, an attempt by a manager to initiate a new collaborative climate, however sincere, may appear politically motivated. To address this problem, top management must engage other employees who can serve as change agents (see earlier discussion regarding re-cycling action research) to assist in developing new ideas for the continual improvement of the organization. Finally, there is some social negotiation that occurs as outside researchers work with employees to break the typical “consulting” mold. Although the participants in the present study were generally receptive to our role in developing intervention through empiricism, perhaps because of efforts at socialization early in the project, this is an issue that must be handled with care to aid in the success of action research projects. The bottom line is that action research involves a continual process that unfolds over the long term; although the time invested will likely be significant, the potential for positive and continued outcomes is high (McNiff, 2000).

Translating action research to other organizational contexts. The strength of the action research paradigm is its ability to translate to other situations where organizations are seeking to make significant changes (McNiff, 2000). Whereas the specific interventions may differ depending on the unique stressors faced in the organization (e.g., low social support appeared to be an issue in the present organization though it may not be a problem in others), the general pattern used to develop the interventions remains. The key is that by working collaboratively to determine the sources of stress and burnout in organizations, employees can develop intervention strategies that are suited for their specific needs.

Certainly, action research differs from more typical management consulting paradigms and in fact may not always be the best approach for a given organizational problem (Beckhard, 1969; Burke, 1994). For example, for organizations seeking to downsize, a collaborative approach that depends on the development of relationships

between employees and researchers may not be appropriate as it may be exceedingly difficult to objectively determine changes that need to be made to address the situation. Specifically, action research may not be possible or practical in situations where access to the full group of stakeholders is limited or where the organization is not interested in experimenting with a variety of potential interventions.

Strengths and Limitations

A limitation of the present study is the absence of a true control group. Although we employed a pretest-posttest design that indicated success in the intervention, such designs are subject to specific threats to validity, including testing, maturation, attrition, and history effects (Cook & Campbell, 1979; Cook, Campbell, & Peracchio, 1990). Some of these threats are minimized by design considerations. For example, testing effects tend to be a greater concern when there is a short interval between measurement periods; in the present study there was a year between measurement, reducing the likelihood that participants' responses to the second survey were influenced by their responses to the first survey (though not completely ruling out this possibility).

Moreover, because there is no control group, we cannot rule out the possibility of maturation, whereby the employees' burnout would have naturally improved without any intervention. Although this possibility cannot be ruled out, Taris, Le Blanc, Schaufeli, and Schreurs (2005) suggested that burnout scores typically remain quite stable over time, which would make a natural downward progression of burnout scores unlikely (see also Halbesleben & Demerouti, 2005).

Finally, attrition from Time 1 to Time 2 must be recognized as a limitation, particularly as those who were higher in burnout may not have chosen to respond to the second survey. Similarly, although our close association with the situation suggests that this is not the case, we cannot rule out a history confound where some event occurred that could explain our findings. Taken together, these concerns limit the internal validity of the quantitative evaluation of the intervention; future research that uses action research with a control group for comparison would be particularly valuable in addressing these types of limitations.

Furthermore, we recognize that the quantitative data collected are single-source data, which may lead them to susceptibility to common method bias. Indeed, the high correlations between variables in the study suggest that this may be a factor. To test for the effect of common method bias, we conducted Harmon's one-factor test to determine whether the measured (nondemographic) scales were influenced significantly by a common measurement factor (cf. Mossholder, Bennett, Kemery, & Wesolowski, 1998). Using confirmatory factor analysis, we tested a model that loaded all of the measured variables onto one factor, finding that it provided relatively poor fit to the data ($\chi^2 = 198.65$, $df = 6$, Tucker-Lewis Index = .57, Comparative Fix Index = .62, Root Mean Square Error of Approximation = .19). Although this test cannot rule out the possibility of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), when considered along with the qualitative data, the test suggests that factors other than common methods are likely influencing the data. Moreover, the use of measure-

ment scales with well-documented psychometric properties and a time lag of 1 year help to minimize concerns with common method bias.

The issue of common method bias is further limited to some extent by one of the strengths of the study, specifically the use of multiple sources of information (observations, interviews, and surveys; Woodman, 1989). The relative consistency across the forms of data collection offers greater confidence in the findings. For example, although our survey measures for turnover intention may be susceptible to common method bias in their relationship with the other measures, our observation that only one employee had left the organization in the year following the intervention (and this was to pursue a different career opportunity, not dissatisfaction with the department) helps increase our confidence that the intervention assisted in reducing turnover. Overall, our study is one of a very few evaluation studies that employed both quantitative and qualitative methods; doing so allows us to mitigate the limitations of either technique and increase our confidence in the success of our intervention strategy.

Conclusion

Our objective with this article was to discuss the manner in which action research can be used to resolve important organizational issues while advancing theory and research on a phenomenon of interest to organizations. In the present research context, practitioners and researchers have sought ways to address the problem of burnout since its “discovery” as an important occupational health outcome; however, little progress has been made in developing effective programs for the reduction of burnout. We have demonstrated that using collaborative research techniques such as action research can lead to meaningful advances in our understanding of burnout while also providing an opportunity for organization development for the fire department.

NOTES

1. Note that we have chosen to base our study on one conceptualization of burnout, that proposed by Maslach (1982) and advocated by others (e.g., Halbesleben & Buckley, 2004). Our choice was based on the existence of a validated measure of burnout based on Maslach’s conceptualization that would allow for a tool to benchmark the success of the intervention program. With that noted, alternative conceptualizations of burnout exist (see e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Pines & Aronson, 1988; Shirom, 2003).

2. We should note that these findings are somewhat different from what has been found when studying interventions designed to assist in stress management. Van der Klink, Blonk, Schene, and van Dijk (2001) found a nonsignificant effect for organization-focused stress management interventions and a moderate effect for cognitive-behavioral interventions in their meta-analysis of 48 studies. Perhaps this highlights the difference between stress and burnout; whereas cognitive-behavioral techniques are effective at reducing stress (by helping individuals in their assessment and reaction to stressors), such techniques are simply too little, too late to address burnout. As such, techniques that more specifically address stressors in the environment tend to be better for burnout.

3. Only two employees chose not to participate in the sessions. Due to ethical concerns, we could not force them to participate but recognize that their views were not included in development of the intervention program.

REFERENCES

- American Institute of Stress. (2002). *Job stress*. New York: Author.
- Antonioni, D. (1996). Designing an effective 360-degree appraisal feedback process. *Organizational Dynamics*, 25, 24-38.
- Argyris, C., & Schon, D. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.
- Bartunek, J., Costa, T., Dame, R., & LeLacheur, D. (2000). Managers and project leaders conducting their own action research interventions. In R. T. Golembiewski (Ed.), *Handbook of organizational consultation* (2nd ed., pp. 59-70). New York: Marcel Dekker.
- Baruch-Feldman, C., Brondolo, E., Ben-Dayana, D., & Schwartz, J. (2002). Sources of social support and burnout, job satisfaction, and productivity. *Journal of Occupational Health Psychology*, 7, 84-93.
- Beaton, R., Johnson, C. L., Infield, S., Ollis, T., & Bond, G. (2001). Outcomes of a leadership intervention for a metropolitan fire department. *Psychological Reports*, 88, 1049-1066.
- Beckhard, R. (1969). *Organization development: Strategies and models*. Reading, MA: Addison-Wesley.
- Brown, L. (1984). Mutual help staff group to manage work stress. *Social Work With Groups*, 7, 55-66.
- Bruce, R., & Wyman, S. (1998). *Changing organizations: Practicing action training and research*. Thousand Oaks, CA: Sage.
- Burke, W. W. (1994). *Organization development: A process of learning and changing* (2nd ed.). Reading, MA: Addison-Wesley.
- Campbell, A. (1989). Does your organization need a mission? *Leadership & Organizational Development Journal*, 10, 3-9.
- Carlson, D. S., & Perrewé, P. L. (1999). The role of social support in the stressor-strain relationship: An examination of work-family conflict. *Journal of Management*, 25, 513-540.
- Cartwright, S., & Cooper, C. (2005). Individually targeted interventions. In J. Barling, E. K. Kelloway, & M. R. Frone (Eds.), *Handbook of work stress* (pp. 607-622). Thousand Oaks, CA: Sage.
- Concoran, K. J., & Bryce, A. K. (1983). Intervention in the experience of burnout: Effects of skill development. *Journal of Social Science Research*, 7, 71-79.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally.
- Cook, T. D., Campbell, D. T., & Peracchio, L. (1990). Quasi-experimentation. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 1, 2nd ed., pp. 491-576). Palo Alto, CA: Consulting Psychologists Press.
- Coughlan, P., & Coughlan, D. (2002). Action research for operations management. *International Journal of Operations and Production Management*, 22, 220-240.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- Eden, C., & Huxham, C. (1996). Action research for management research. *British Journal of Management*, 7, 75-86.
- Ferris, G. R., & King, T. R. (1991). Politics in human resources decisions: A walk on the wild side. *Organizational Dynamics*, 20, 59-71.
- Freedy, J. R., & Hobfoll, S. E. (1994). Stress inoculation for reduction of burnout: A conservation of resources approach. *Anxiety, Stress, & Coping*, 6, 311-325.
- Frohman, M. A., Sashkin, M., & Kavanagh, M. J. (1976). Action research as applied to organization development. *Organization and Administrative Sciences*, 7, 129-142.
- Gardner, N. (1974). Action training and research: Something old and something new. *Public Administration Review*, 34, 106-115.
- Golembiewski, R. W., & Boss, W. (1992). Phases of burnout in diagnosis and intervention: Individual level of analysis in organization development and change. In W. A. Pasmore & R. W. Woodman (Eds.), *Research in organizational change and development* (Vol. 6, pp. 115-152). Greenwich, CT: JAI.
- Golembiewski, R. T., Munzenrider, R. F., & Stevenson, J. G. (1986). *Stress in organizations*. New York: Praeger.

- Halbesleben, J. R. B. (in press). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology*.
- Halbesleben, J. R. B., & Buckley, M. R. (2004). Burnout in organizational life. *Journal of Management*, *30*, 859-880.
- Halbesleben, J. R. B., & Demerouti, E. (2005). Assessing the construct validity of an alternative measure of burnout: Investigating the Oldenberg Burnout Inventory. *Work & Stress*, *19*, 208-220.
- Heaney, C. A., Israel, B. A., Schurman, S. J., Baker, E. A., House, J. S., & Hugentobler, M. (1993). Industrial relations, worksite stress reduction and employee well-being: A participatory action research investigation. *Journal of Organizational Behavior*, *14*, 494-510.
- Higgins, N. C. (1986). Occupational stress and working women: The effectiveness of two stress reduction programs. *Journal of Vocational Behavior*, *29*, 66-78.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, *50*, 337-370.
- Hunger, J. D., & Stern, L. W. (1976). An assessment of the functionality of the superordinate goals in reducing conflict. *Academy of Management Journal*, *19*, 591-605.
- Hurrell, J. J. (2005). Organizational stress intervention. In J. Barling, E. K. Kelloway, & M. R. Frone (Eds.), *Handbook of work stress* (pp. 623-645). Thousand Oaks, CA: Sage.
- Landsbergis, P. A., & Vivona-Vaughan, E. (1995). Evaluation of an occupational stress intervention in a public agency. *Journal of Organizational Behavior*, *16*, 29-45.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, *81*, 123-133.
- Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, *2*(4), 34-46.
- Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.
- Maslach, C., & Goldberg, J. (1998). Prevention of burnout: A new perspective. *Applied Preventative Psychology*, *7*, 63-74.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Leiter, M. P., & Schaufeli, W. B. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.
- McNiff, J. (2000). *Action research in organizations*. London: Routledge.
- McNiff, J. (2002). *Action research: Principles and practice*. London: Routledge.
- Miller, K. I., Ellis, B. H., & Zook, E. G. (1990). An integrated model of communication, stress, and burnout in the workplace. *Communication Research*, *17*, 300-326.
- Mitchell, T. R., Holton, B. C., Lee, T. W., Soblynski, L. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, *44*, 1102-1122.
- Moore, J. E. (2000). Why is this happening? A causal attribution approach to work exhaustion consequences. *Academy of Management Review*, *25*, 335-349.
- Mossholder, K. W., Bennett, N., Kemery, E. R., & Wesolowski, M. A. (1998). Relationships between bases of power and work reactions: The mediational role of procedural justice. *Journal of Management*, *24*, 533-552.
- Munchus, G. (1983). Employer-employee based quality circles in Japan: Human resource policy implications for American firms. *Academy of Management Review*, *8*, 255-261.
- Nadler, D. A. (1977). *Feedback and organization development: Using data-based methods*. Reading, MA: Addison-Wesley.
- Pasmore, W., & Friedlander, F. (1982). An action research program for increasing employee involvement with problem solving. *Administrative Science Quarterly*, *27*, 343-362.
- Pines, A., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York: Free Press.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903.
- Reason, P., & Bradbury, H. (Eds.). (2001a). *The handbook of action research*. London: Sage.
- Reason, P., & Bradbury, H. (2001b). Introduction: Inquiry and participation in search of a world worthy of human aspiration. In P. Reason & H. Bradbury (Eds.), *The handbook of action research* (pp. 1-14). London: Sage.

- Rothwell, W. J., Sullivan, R., & McLean, G. N. (1995). *Practicing organization development: A guide for consultants*. San Francisco: Jossey-Bass.
- Schaufeli, W. B. (1995). The evaluation of a burnout workshop for community nurses. *Journal of Health and Human Resources Administration, 18*, 11-40.
- Sherif, M. (1958). Superordinate goals in the reduction of intergroup conflict. *American Journal of Sociology, 63*, 349-356.
- Shirom, A. (2003). Job-related burnout: A review. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245-264). Washington, DC: APA.
- Stringer, E. T. (1999). *Action research* (2nd ed.). Thousand Oaks, CA: Sage.
- Taris, T. W., Le Blanc, P. M., Schaufeli, W. B., & Schreurs, P. J. G. (2005). Are there causal relationships between the dimensions in the Maslach Burnout Inventory? A review and two longitudinal tests. *Work & Stress, 19*, 238-255.
- Theorell, T., Emdad, R., Arnetz, B., & Weingarten, A. (2001). Employee effects of an educational program for managers at an insurance company. *Psychosomatic Medicine, 63*, 724-733.
- Van der Klink, J. J. L., Blonk, R. W. B., Schene, A. H., & van Dijk, F. J. H. (2001). The benefits of interventions for work-related stress. *American Journal of Public Health, 91*, 270-276.
- Van Dierendonck, D., Schaufeli, W. B., & Buunk, B. P. (1998). The evaluation of an individual burnout intervention program: The role of inequity and social support. *Journal of Applied Psychology, 83*, 392-407.
- Vangen, S., & Huxham, C. (2003). Nurturing collaborative relations: Building trust in interorganizational collaboration. *Journal of Applied Behavioral Science, 39*, 5-31.
- Wanous, J. P. (1992). *Organizational entry* (2nd ed.). Reading, MA: Addison-Wesley.
- Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. (1967). *Manual for the Minnesota Satisfaction Questionnaire*. Minneapolis: University of Minnesota Industrial Relations Center.
- West, D. H., Horan, J. J., & Games, P. A. (1984). Component analysis of occupational stress inoculation applied to registered nurses in an acute care hospital setting. *Journal of Counseling Psychology, 31*, 209-218.
- Woodman, R. W. (1989). Evaluation research on organizational change: Arguments for a combined paradigm approach. In R. W. Woodman & W. A. Pasmore (Eds.), *Research in organizational change and development* (Vol. 3, pp. 161-180). Greenwich, CT: JAI.