



# WORKPLACE CHANGE

The Interuniversity Project  
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Institute of Behavioral Science,  
University of Colorado at Boulder  
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*WORKING PAPER*

## **The Changing American Workplace and the Sense of Mastery: Assessing the Impacts of Downsizing, Job Redesign and Teaming**

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## Abstract

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Using a large representative sample from one of the America’s largest manufacturing companies, we test a set of hypotheses regarding how downsizing, job reengineering and redesign, and the introduction of team forms of organization affect individual’s sense of mastery. We hypothesize that personal closeness to the layoff experience, as well as judgments about top management’s unfairness during layoffs, will be associated with a low sense of mastery as will those aspects of job redesign that lower personal autonomy at work. We hypothesize, moreover, that being on a work team and experiencing autonomy-enhancing job redesign, will be associated with a high sense of mastery. We use OLS regression to test the hypotheses. The results strongly confirm our expectations about how important workplace changes are affecting employees’ sense of mastery.

## **Introduction**

We ask in this article whether employees' psychological well-being is enhanced or diminished by a range of organizational innovations that are currently transforming the American workplace. We are interested, in particular, in the effects of what we take to be the most important of these organizational innovations—downsizing, job reengineering, and teaming (Reich 1992; Drucker 1993; Sabel 1993; Appelbaum and Batt 1994; Drucker 1995; McKenna 1997; Pfeffer 1998)—upon the sense of mastery (and its converse, the sense of powerlessness) of employees. We focus on the sense of mastery (and the sense of powerlessness) as the dependent variable in our investigation for a number of reasons: because of the historic association in the scholarly literature between the sense of mastery and the content and social relations of work (Argyris 1957; Seeman 1959; Blauner 1964; Blumberg 1968; Kohn and Schooler 1983; Greenberg 1986); because the sense of mastery has been shown to be highly influential in shaping a broad range of attitudes and behaviors;<sup>1</sup> and because some aspects of downsizing, job reengineering and teaming would seem, on their face, to disempower employees, while other aspects, on their face, would seem to empower them. In this article, we test the hypothesis that structural transformations in the workplace which empower employees will increase their sense of mastery, while structural transformations which reduce the power and autonomy of employees will undermine their sense of mastery (or increase their sense of powerlessness).

There is a long research tradition that supports our belief that job experiences in general and the relative degree of the exercise of power and autonomy at the workplace in particular are associated with the shaping of both job attitudes and more basic psychological orientations. As Melvin Kohn put it in a review of the relevant literature, "...these studies uniformly support the

proposition that the conditions of work experienced by gainfully employed men and women affect their values, self-conceptions, orientations to social reality, and cognitive functioning...and the effects of job conditions on personality are far from trivial in magnitude..."(Kohn 1990:40)

A similar conclusion is reached by Lennon and Rosenfield and Cooper in their reviews of the research literature on the relationships among job conditions, job attitudes and psychological orientations (Spencer and Otto 1984; Lennon and Rosenfeld 1992) (also see Andrisani 1978; Brousseau 1978; Kohn and Schooler 1983; Spencer and Otto 1984; Karasek and Theorell 1990).

In this analysis, we examine whether downsizing, job reengineering and teaming affect levels of perceived mastery. Our sample is drawn from a single, large company, so broad generalizations about the American workforce are impossible to draw. On the other hand, our sample allows for an intensive examination of the workplace experience and how it affects mastery and powerlessness, and permits the generation of what we hope are highly suggestive conclusions.

### **Mastery and Powerlessness**

Our focus in this article is on the subjective senses of mastery and powerlessness. In our view, they are not so much different concepts as the end-point anchors of a continuum. At one end of the continuum, the sense of mastery may be understood as an outlook in which the individual believes that he or she is efficacious across a broad range of life domains, that he or she "can and does master, control and shape one's own life."(Geis and Ross 1998:233) At the other end of the continuum, the sense of powerlessness may be understood as an outlook in which the individual believes "that outcomes of situations are determined by forces external to [himself or herself]...that [he or she] is powerless to achieve desired ends."(Geis and Ross 1998:233) It is a sense of personal inefficacy, a sense that one's efforts do not make a difference (Seeman 1959). It is important to note, however, that while we suggest that organizational transformations affect the senses of mastery and powerlessness of employees, we are not making a claim that the senses of mastery and powerlessness are wholly, or even mainly, explained by experiences at work.

Indeed, we suspect that several other aspects of a person's life history—upbringing, family and peer relationships, level of education, income, and more—probably play a more prominent role than work experiences. Nevertheless, we believe (and will test the belief) that the nature of one's job and workplace relations, to the extent that they add to or detract from the ability to exercise power and autonomy, have a significant impact on one's senses of mastery and powerlessness.

Perceived mastery and powerlessness represent an important focus of attention because they have been implicated in the shaping of a range of significant attitudes and behaviors. For example, the research literature shows that the senses of mastery and powerlessness are associated with such work-relevant attitudes as job involvement, organizational identification and organizational commitment (Ashforth 1989). Perceived mastery and powerlessness have also been shown to be significantly implicated in the shaping of drinking patterns and the generation of problem alcohol behavior (Seeman and Anderson 1983; Seeman, Seeman et al. 1988). More broadly still, perceived mastery and powerlessness have been shown to be strongly associated with a wide range of health behaviors, disease incidence, and morbidity (Rodin, Timko et al. 1985; Antonovsky 1987; Ross and Bird 1994; Seeman and Lewis 1995). And, perceived mastery and powerlessness have been shown to be significant in the development of a number of important psychological outcomes, including levels of anxiety, the ability to cope with stress, and incidence rates for depression and psychosis (Pearlin and Schooler 1978; Fleming and Courtney 1983; Mirowsky and Ross 1989; McGonagle and Kessler 1990; Wallerstein 1992).

### **Organizational Innovations: Downsizing, Job Reengineering and Teaming**

Fundamental transformations now underway in the global economy have compelled large corporations to develop new strategies with respect to both their external environment and their internal operations to enhance competitiveness (Caporaso 1987; Mytelka 1987; Hancock, Logue et al. 1991; Stopford and Strange 1991; Dicken 1992; Preston and Windsor 1992; Drucker 1993; Doremus, Keller et al. 1998). We concentrate here on internal corporate strategies and their consequences for employees. Intensified global competition forces firms to address what might

be done internally to increase probabilities for survival and profitability. There is widespread agreement among informed observers that two major strategies are generally employed: cutting production costs for exiting processes; and engaging in what Sabel calls permanent innovation in designing, producing, marketing and selling of products and services. (Sabel 1993: 138-39) The first has typically involved automating production processes where possible, cutting redundant activities and subcontracting to lower cost producers. The upshot is a smaller work force within the firm, achieved through “downsizing.” (Tomasko 1987; Kozlowski, Chao et al. 1993; Cameron 1994; Harrison and Shaffer 1994; Feldman and Leana 1995; Kets de Vries and Balazs 1997) The second has typically involved explorations of ways to better use the skills and creativity of those in the organization to increase overall productivity and to be more responsive to rapidly changing markets. Firms increasingly require nimble organization, flexible use and deployment of enterprise skills, a workforce comfortable with change and uncertainty, and less hierarchical and more cooperative forms of decision-making. For employees, this generally means “reengineering” existing jobs—learning new skills, or using skills in unfamiliar settings or tasks, changing standard operating procedures, increased responsibility for autonomous action, results-based compensation, and an intensification of work (longer hours, more pressures to produce results)—and, very often, becoming members of “work teams.” Organizational innovation, then, is mainly experienced by employees in the contemporary workplace as layoffs or the perceived threat of future layoffs, as reengineered jobs in which they are asked to do more, in less time, and with new tools, technologies, and organizational arrangements, and as reorganization into semi-autonomous project work teams. We look at each in more detail.

While only a minority of Americans have actually been laid off from their jobs in recent years, a substantial number of American have been affected by the general process of “downsizing” (experienced by workers as “layoffs”). Research on *layoff survivors* shows that many are profoundly and negatively affected—in terms of morale, physical and mental health, company commitment, job dissatisfaction, and more-- by the layoffs of friends and co-workers in

their companies, especially if they themselves had ever been laid off or warned that they were about to be let go. (Tombaugh and White 1990; Kozlowski, Chao et al. 1993; Noer 1993; Mone 1994; Sadri 1995; Kanter 1997; Shaw and Barret-Power 1997) Many employees in this study said in interviews and in focus groups that they carry strong memories of having been laid off in the past, or of having close friends and work-mates forced from the company, or worry that their number will come up in some future round of layoffs. Each of these circumstances is likely to engender uncertainty and anxiety about the future and affect more fundamental psychological outlooks. Because employees are generally not involved in making decisions about layoffs and because there almost certainly exist uncertainties about their own futures, it is reasonable to suppose that surviving employees in downsizing organizations are likely to feel increasingly powerless.

Unlike layoffs or the threat of layoffs, the job reengineering experience is not necessarily a negative one for all employees. While some may find the rapidity of change and the requirement that they “retool” themselves in various ways threatening and discomfoting, and less in control of their own fates, some employees may experience job reengineering as liberating, exhilarating and empowering because it allows them to use their skills and capacities to the full, avoid boredom, work more cooperatively with others, and encounter the workplace as a total learning environment. Job reengineering, then, may contribute to a growing sense of power and control for some employees even while it undermines the sense of power and control for other employees.

Much the same thing can be said about teams. For the most part, the scholarly and management literature celebrates the empowering aspects of teaming on employees. At their best, the research shows, teams give employees at every level of the organization increased influence over their immediate work environment, access to a wider range of resources for doing their jobs, more information, and a better sense of how their work group fits into the overall activities of the firm. (Ajzen and Madden 1986; Goodman, Davadas et al. 1988; Cohen 1993; Katzenbach and

Smith 1993; Cohen and Ledford 1994; Cohen, Ledford et al. 1996; Guzzo and Dickson 1996; Cohen and Bailey 1997). Being on team, we know, tends to improve employee morale, performance, commitment, trust and job satisfaction (Hackman and Morris 1975; Hackman, Pearce et al. 1978; Goodman, Davadas et al. 1988; Levine and D'Andrea 1990; Osburn, Moran et al. 1990; Wellins, Byham et al. 1991; Cohen and Ledford 1994). There is also considerable evidence from the workplace participation literature that participation in “team-like” arrangements has positive effects on the sense of mastery and self-esteem among employees (Elden 1981; Greenberg 1981; Mason 1982; Greenberg and Grunberg 1994). We also know that lack of participation in decision making and low job autonomy, characteristic of non-team environments, contributes to feelings of alienation and powerlessness (Blauner 1964; Kornhauser 1965; Braverman 1974; Karasek 1979; Elden 1981; Greenberg 1981; Mason 1982; Kohn and Schooler 1983; Markowitz 1984; Karasek and Theorell 1990; Greenberg and Grunberg 1994). This would lead us to suspect, if empowerment at work is related to psychological outlooks, that being on a team would increase the levels of mastery among employees.

### **Hypotheses Relating Downsizing, Job Reengineering and Teaming to the Senses of Mastery and Powerlessness**

Based on the discussion in the previous two sections, we set out a series of hypotheses to be tested:

H1. *Employees with the most direct and intense layoff experiences will report the lowest levels of mastery.*

We suggested above that the management and scholarly literature reports that employees in downsizing firms feel more anxious about and less in control of their fates than employees in firms that are not downsizing, all other things being equal, and report the highest levels of perceived powerlessness. We wish to take this a logical step further. We suggest and wish to test the proposition that within a downsizing firm, there exist substantial differences among employees in how closely they have encountered the layoff experience and that the relative

closeness to this experience affects employees' sense of control over their personal fates. Thus, some employees have been laid off in the past and then rehired; some have been warned that they will be let go in the next round of layoffs, if and when they occur; still others have had close associates and friends laid off; yet others may be in divisions or groups where, for one reason or another, layoffs have not occurred and are not likely to occur. It is reasonable to suggest that it is those employees who have most closely experienced layoffs in a downsizing firm who will feel the most powerless, their fates decided by distant and unaccountable decision makers in the company.

*H2. The stronger the belief that their company acted fairly in conducting layoffs, the higher will be employees' sense of mastery.*

One of the recurring themes in our interviews and focus group sessions with employees (to be described below in the section on data gathering) is that the closeness to or saliency of layoffs is less important for surviving employees' than is their perception of how fairly and justly top management conducted layoffs. Perhaps recognizing that companies must sometimes lay off people, current employees repeatedly expressed the view that what was important to them was that management selected those who were to be laid off on the basis of clear and reasonable criteria, were given fair notice, and were given some assistance by the company in finding a new job. The limited research literature that exists on this issue supports the findings of our interviews and focus groups: assessment of how justly their company acted during "downsizing" profoundly affects employees' overall feelings about their company, their existing situation and their future prospects. (Brockner, Greenberg et al. 1988; Rousseau 1989; Kissler 1994; Robinson, Kraatz et al. 1994; Morrison and Robinson 1997) Fair and just layoff policies seems to decrease the degree of felt arbitrariness and uncertainty felt by employees, and it is not unreasonable to suggest that this will affect their overall feelings of mastery and powerlessness. Thus, hypothesis H2.

*H3. Employees on work teams will have a higher sense of mastery than employees not on work teams.*

By their very nature, work teams are an organizational innovation that decreases the degree of direct control by supervisors and grants varying degrees of autonomy and decision making power to groups of employees working on a particular process or project. If exercising power on the job contributes to perceived mastery, then membership on a work team logically ought to enhance the sense of mastery.

*H4. The effects of job reengineering innovations on employees' sense of mastery will be variable, with the most empowering innovations associated with the highest levels of mastery.*

We believe, on the basis of interviews and focus group sessions (to be described below) that the job and workplace changes that have been instituted in this and other large companies are, on balance, empowering rather than disempowering. Many of the job redesign initiatives require that employees take on more responsibilities, learn new ways of doing things, and work with a broader range of people in their company. Though these changes may well increase stress levels, they also ask that employees more fully use their capacities and talents on more challenging problems. Based on a theoretical and empirical research tradition going all the way back to Marx, there is every reason to believe that such enriched experiences, especially those that enhance employees' control over the workplace and autonomy in their jobs will enhance employees' perceived mastery. Some innovations, for example, might enhance the skill of employees, or give them more say in decision making. Others might so overload employees with added responsibilities that they come to feel that matters are out of control. The former, we suggest, will be associated with higher levels of perceived mastery; the latter, with lower levels. We shall have more to say about the hypothesized effects of job reengineering changes in the section on variables where we describe measures of the principal domains of workplace innovation.

## **Methods**

### Study Site

The study was conducted in the largest division of a very large manufacturing company on the west coast of the United States that produces high technology products. The company is the dominant firm in its product line and an important U.S. exporter. The division in our study employed well over 80,000 people at the time of our investigations, with employees occupying posts stretching across a wide range of job skills and occupational categories, from high level design engineers to semi-skilled assemblers, from accountants to receptionists. The division operates in an industry subject to cyclical fluctuations in demand. As we began our study, the division was just completing a four-year-long process of layoffs that had reduced the workforce by 27 percent (and was actually beginning a process of rehiring to meet higher demand). The layoffs were distributed across all job classifications (known as paycodes in the organization) in rough proportion to each paycode's representation in the division. Additionally, many employees received "warn notices" notifying them that they might be laid off should further workforce reductions prove necessary.<sup>2</sup> The layoffs were undertaken in this instance both as a response to a decline in market demand and as part of a long-term strategy to restructure the design and production process. The strategy included conversion to a computerized and streamlined design and part-ordering system, the introduction of lean manufacturing modeled on the Toyota system (Womack, Jones et al. 1990) as well as experiments with cross-functional teams in certain areas and product lines. These changes were designed to raise productivity by cutting cycle time and costs across the entire division.

The division cooperated fully in the study, allowing us to examine important documents and statistical information, giving us access to key policy makers and employees on condition of complete confidentiality. We also sought and gained the support of the two labor unions that together represent about 70 percent of company employees. One union represents line-manufacturing workers; the other represents engineers and technicians.

## Data Collection

This analysis is but a small part of a much larger, longitudinal-panel study that seeks to examine the impact of layoffs, job reengineering and redesign, and teaming on employees. This article reports results from the first cross-section sample gathered in Fall, 1996 and Winter, 1997. Data were collected in three forms. First, depth interviews lasting from one to two hours were conducted with a randomly selected sample of 53 employees, representing all job categories and management levels. Interviews were also held with top managers in order to gain a sense of the company's rationale for layoffs, reengineering and teaming and where these changes fit in their strategic vision for the company. Second, three focus group sessions, involving 22 employees, were conducted by the principle investigators. Both the employee interviews and focus group sessions were taped and transcribed for later reference. The purpose of the employee interviews and focus groups was to gain a sense from the employees of the range of changes going on in the firm, their jobs and workplace social and supervisory relations, their feelings about the changes going on around them, participation in problematic behaviors (like alcohol abuse) connected to changes at work, and possible tensions between work and family responsibilities. Third, a questionnaire<sup>3</sup> was sent to 3,700 randomly selected employees who had worked for the firm for at least two years.<sup>4</sup> 2,279 valid questionnaires were returned, representing a 62 percent return rate. Respondents were 75 percent male, had a mean age of 44, and a mean company tenure of 14.6 years. The mean level of education was "Associates Degree," roughly two years of college, and the mean household income of respondents was close to \$60,000. Among the respondents, 9.1 percent had received a "warn notice" (putting them on notice that they were candidates for being laid off) within the last five years, but less than 1 percent had actually been laid off and rehired within that time period. 35 percent had a close friend at work who had been laid off, however, while 50 percent knew other co-workers who had been let go. 42 percent of employees in this sample are currently on a work team, 36 percent had been on a work team in the past but were not presently on one, while 22 percent had never been on a work team.

## Variables

In this section we describe the main variables and measures used in this analysis. For the most part, the measures take the form of indices constructed from multiple questions. Some of the measures used in the analysis are standard measures from the social science literature, validated across a wide range of studies. Other measures have been created specifically for this study, based on questions suggested by the depth interviews and focus groups sessions. For these latter measures, we performed a combination of item and scale analyses (e.g. item-to-total correlations, exploratory factor analysis, and Cronbach's internal consistency analysis for simple additive indices (Cronbach 1951)). Below is a description of the scales used in this study.<sup>5</sup>

Mastery In this study we measure the sense of mastery using the seven item, widely-used and validated mastery scale created by Pearlin and Schooler. (Pearlin and Schooler 1978). To accentuate the point that mastery and powerlessness anchor two ends of a single continuum, the questions that make up the scale ask about both mastery and powerlessness, with the powerlessness items reverse coded to create a fit with the mastery questions. Mastery scores range from 8 to 35, with an Alpha score of .82.

Closeness to Layoffs This scale is original to this study. It is constructed from four multi-item questions that probe the details of respondents' direct and indirect experience with layoffs in their present company. The questions ask respondents whether they had in recent years been laid off and then rehired, received a notice that they might be laid off in the next round of layoffs, or had close friends and/or co-workers laid off. In order to take account of the relative intensity of the layoff experience, items were weighted such that being laid off was scored as "4", receiving a warning that one might be laid off in 60 days was scored as "3", having a friend in the company laid off was scored as "2", and having a co-worker laid off was scored as "1". The resulting index ranges from 0 to 10.

Sense of Layoff Justice Two questions original to this study make up this additive index. One asks whether the respondent believes the company acted fairly in selecting those who were to be let go during the last round of layoffs; the other asks how well the company treated those who were let go. The scale range is 2-8, with an Alpha score of .66.

Experiences With Job Redesign The questionnaire included 11 questions that asked respondents “how has the work you do at X company changed over the past two years.” Each question had a 5-point response pattern ranging from “much more” to “much less.” The questions were grouped into four principal domains of job redesign on the basis of confirmatory factor analysis procedures. The questions in each domain were then aggregated into four additive scales, and tested for internal consistency.

The indices of the four principal domains of job redesign are described here:

Job Redesign Subscale: Skill Enhancement This scale is comprised of four questions asking about the extent to which job redesign experienced by the employee has involved learning new skills and working on new problems, requiring additional training. We hypothesize, based on our previous discussion, that innovations that increase employee skill sets will enhance perceived mastery. The range for this scale is 4-20, with an Alpha score of .83.

Job Redesign Subscale: Work Overload This scale is comprised of three questions that focus on the degree to which job redesign experienced has involved the addition of unwelcome time, meetings and tasks to existing job responsibilities. We suggest that innovations that lead to what has conventionally been called “work overload” will decrease the sense of mastery of employees. The range for this scale is 3-15, with an Alpha score of .59.

Job Redesign Subscale: Computers This scale is comprised of two questions that ask about the need to learn more about computers and software. We are agnostic about the probable outcomes of innovations that lead to more usage of computers. Some employees may feel empowered by it; others overwhelmed. The range for this scale is 2-10, with an Alpha score of .77.

Job Redesign Subscale: Autonomy This scale is comprised of two questions that ask about increased autonomy (working with less supervision; being more responsible for setting work goals). As suggested in the literature review section, we believe that job reengineering innovations that enhance employees' actual autonomy, that is, give them more control over their jobs, will enhance their sense of mastery. The range for this scale is 2-10, with an Alpha score of .66.

Presently on a Work Team This is a dummy variable in which "1"= "presently a member of a work team" and "0"= "have been on a work team in the past, but not now," or "have never been on a work team." The measure is done in this fashion because of preliminary analyses that show that, with respect to all measures in the study (not simply those relevant to this article), having been on a work team in the past has no lasting qualities. Those who were on work teams in the past, that is to say, are in every important respect similar to those who had never been on a work team and distinct from those presently on a team.

Control Variables In addition to a number of traditional control variables that have been shown to be associated with perceived mastery and powerlessness—namely, sex, income, education and age (Seeman 1983; Schieman and Turner 1998)—we use a job-category control variable throughout the analysis that we have designated "paycode," borrowing the terminology from the company used in this study. We do so to recognize the likely possibility that much of what goes on in the workplace, from layoffs, to job reengineering and assessments of top management, will be influenced by the kind of job one has and where one fits in the organizational hierarchy. For the purposes of this study on mastery and powerlessness, we created a dummy variable designed to take into account the varying degrees of power and autonomy various job classifications exercise. High autonomy job categories—professionals, administrators, and middle managers—were coded "1", while lower autonomy job categories—hourly production workers, secretaries, technicians and engineers—were coded "0."

## **Data Analysis**

We have described the demographic characteristics as well as team and layoff experience information above in the section on data collection. Summary statistics for the scales used in this analysis are reported in Table 1. A number of observations are in order. First, employees cluster near the lower end of the “closeness to layoffs experience,” confirming that the vast majority of our sample has not had direct experience with layoffs, though many had seen friends or co-workers laid off. Second, employees tend to feel that the layoff process has been handled justly, with the mean score on the scale near the upper end of the scale. Third, employees have experienced a fair amount of job reengineering, confirming our findings from interviews and focus groups. And, also as expected, job reengineering has involved each of the four domains, with employees reporting substantial change in their levels of autonomy, use of computers, skills, and work overload. Finally, employees demonstrate an impressive level of perceived mastery, something that might be expected, given the relatively high levels of education and income of our respondents.

TABLE 1 ABOUT HERE

We use OLS regression as our primary analytical strategy in this article, given our use of continuous variable-type scales and dummy variables and our belief that the relationships considered here are linear. We confirmed our assumptions about linearity after examining scatterplots of the standardized residuals using the SPSS statistical package. The results of the regression equations are reported in Table 2.

We begin by examining the effects on the sense of mastery of the main control variables. The results are found in column 1. As expected, age is negatively associated with the sense of mastery and income is positively related. Unexpected is the finding that neither level of education nor job category (e.g. paycode) are significantly associated with perceived mastery. This is true, as well, for gender.

We test H1 by regressing the sense of mastery scale on the control variables and the layoff experience scale. The results are reported in Table 2, column 2. As predicted, the layoff

experience scale is significantly associated with the sense of mastery, confirming the hypothesis. Thus, the closer respondents are to layoffs, the lower is their sense of mastery.

We suggested in H2 that it is not relative closeness to the layoff experience that counts in the long run so much as employees' assessment of how their company's top management went about the business of conducting layoffs. We argued that employees would feel less at the mercy of unseen forces, and more in control of their own lives, if layoffs were seen to be being done in a fair and just manner. We test this hypothesis by introducing the sense of layoff justice measure into the previous regression equation. The results are shown in Table 2, column 3. The hypothesis is supported; not only is the coefficient for sense of layoff justice statistically significant, but the coefficient for the closeness to layoffs measure becomes statistically insignificant. This suggests that the sense of layoff justice is an important mediating variable in the story of the relationship between the sense of mastery and layoffs.

We hypothesized in H4 that being a member of a work team would be associated with higher levels of mastery. Our reasoning was as follows: real autonomy on the job is associated with a sense of mastery (a finding well supported in the research literature, as reviewed above); being on a work team increases worker autonomy; hence, being on a work team is likely to enhance the sense of mastery. We test H4 by adding the dummy variable for "presently on a work team" to the previous equation. We note in Table 2, column 4 that, as predicted, being on a team matters for mastery. The hypothesis is supported. It is also worth pointing out that the layoff justice scale remains significant, indicating its independent effect on employees' sense of mastery.

In H5 we predicted that job reengineering would affect the sense mastery, but in different ways, depending on the types of workplace innovations involved. We argued that job reengineering that enhanced autonomy would be associated with higher levels of mastery and that job reengineering that undermines autonomy and control in the workplace would be associated with lower levels of mastery. We test this hypothesis by adding the four job reengineering domain

scales to the previous equation. The results are reported in Table 2, column 5. Variability of effect among the job reengineering scales is quite evident. Higher levels of mastery, for example, are associated with those workplace innovations that involve increasing employees' autonomy on the job--working with less supervision and gaining more responsibility for setting work goals—and elevating their job skills—by allowing employees to work with new technology and on new tasks-- and by increasing their training. Lower levels of mastery, as predicted, are associated with job reengineering innovations that overload employees: working too many hours, taking on the tasks of others as well as ones own, and attending too many meetings. Simply working with new computers and software, controlling for all other aspects of job reengineering, has no statistically significant effect on employees' sense of mastery. Some aspects of increasing computer use may raise skill levels and autonomy while other aspects may simplify and render routine that which had required implicit job knowledge. The predictive direction of such job reengineering changes, then, is unclear in term of factors that might affect the sense of mastery. Our agnosticism was warranted.

### **Conclusion and Discussion**

Each of the five hypotheses posited earlier in this article is supported by the regression equation results reported in Table 2. We demonstrated that the most important changes now going on in the American workplace—downsizing as a permanent feature of the corporate economy, job reengineering to enhance the performance of labor while cutting its costs, and teaming as a strategy for both eliminating layers of supervision and tapping the creativity and skill synergies of a cooperative workforce—have consequences for the sense of mastery among affected employees. We also demonstrated that a simple “black and white” portrait of the effects on employees of these workplace changes is inappropriate. Some changes, such as teaming, we have found, have positive consequences for mastery, while others, such as relative closeness to layoffs, have negative consequences for employees. We demonstrated, moreover, that the perception of the company's behavior as it conducted layoffs was more important for the sense of mastery than

was employees' relative closeness to the layoffs experience itself. Finally, we demonstrated that different aspects of job reengineering such as enhancing skills and autonomy, increase employees' sense of mastery, while others that "overload" tasks and responsibilities, undermine it.

We must caution about the generalizability of our findings, given the fact that our study was conducted within a single, large company. Use of a representative, random national survey would increase our confidence in the generalizability of our findings, of course, as would a comparative company design that would pull respondents from a wide cross-section of American economic sectors.<sup>6</sup> Having said that, the advantage of the study design used here is the opportunity it has given us to explore job and workplace change in greater detail than is the norm in national surveys and comparative company studies and to link these multiple changes to an important mental perspective that has been shown to influence a wide range of attitudes and behaviors<sup>7</sup>

Our interest is in workplace innovations and how they affect the sense of mastery. We have shown significant size effects of workplace change variables. We do not claim that we have explained the etiology of mastery, however. The low R2 statistics suggest that other factors in the lives of these employees are more central to the fashioning of the sense of mastery, some from their personal histories and social relationships outside of the workplace, no doubt, and some from additional unmeasured influences on the job. Nevertheless, we have shown that certain kinds of innovations made in the work environment enhance the sense of mastery, while others undermine it. We suspect that the positive and negative effects of workplace changes accumulate over time and that the results are likely to be even more dramatic as changes and outcomes are tracked over time.<sup>8</sup> If this proves to be the case, it argues for workplace interventions of the kind that enhance employee autonomy and skills.

Table 1. Descriptive Statistics: Scales

|                                | <b>N</b> | <b>Min.</b> | <b>Max.</b> | <b>Mean</b> | <b>Std. Dev.</b> |
|--------------------------------|----------|-------------|-------------|-------------|------------------|
| <b>Closeness to Layoffs</b>    | 2211     | 0.00        | 10.00       | 1.50        | 1.89             |
| <b>Layoff Justice</b>          | 2142     | 2.00        | 8.00        | 5.70        | 1.40             |
| <b>Mastery</b>                 | 2226     | 8.00        | 35.00       | 26.25       | 4.72             |
| <b>Reengin.:<br/>Autonomy</b>  | 2213     | 2.00        | 10.00       | 7.25        | 1.71             |
| <b>Reengin.:<br/>Overload</b>  | 2230     | 3.00        | 15.00       | 10.83       | 2.13             |
| <b>Reengin.:<br/>Skill</b>     | 2227     | 4.00        | 20.00       | 14.63       | 3.03             |
| <b>Reengin.:<br/>Computers</b> | 2242     | 2.00        | 10.00       | 7.50        | 1.74             |

Table 2

OLS Regression Equations With "Sense of Mastery" as Dependent Variable

|                                 | 1                | 2                | 3                | 4                | 5                 |
|---------------------------------|------------------|------------------|------------------|------------------|-------------------|
| <b>Age</b>                      | -.02*<br>(.012)  | -.03*<br>(.012)  | -.02*<br>(.012)  | -.02*<br>(.012)  | -.02*<br>(.013)   |
| <b>Education</b>                | .08<br>(.072)    | .07<br>(.073)    | .13<br>(.076)    | .08<br>(.077)    | .08<br>(.079)     |
| <b>Income</b>                   | .30***<br>(.069) | .20**<br>(.070)  | .18**<br>(.072)  | .17**<br>(.073)  | .19**<br>(.074)   |
| <b>Paycode</b>                  | .40<br>(.246)    | .40<br>(.249)    | .31<br>(.256)    | .24<br>(.259)    | .18<br>(.265)     |
| <b>Gender</b>                   | .19<br>(.240)    | .16<br>(.245)    | .20<br>(.253)    | .15<br>(.255)    | .05<br>(.262)     |
| <b>Closeness to Layoffs</b>     |                  | -.15**<br>(.055) | -.10<br>(.057)   | -.10<br>(.057)   | -.09<br>(.058)    |
| <b>Layoff Justice</b>           |                  |                  | .38***<br>(.077) | .38***<br>(.077) | .31***<br>(.080)  |
| <b>Presently on a work team</b> |                  |                  |                  | .58**<br>(.225)  | .54*<br>(.233)    |
| <b>Reengin.:<br/>Autonomy</b>   |                  |                  |                  |                  | .30***<br>(.074)  |
| <b>Reengin.:<br/>Computers</b>  |                  |                  |                  |                  | -.08<br>(.074)    |
| <b>Reengin.:<br/>Overload</b>   |                  |                  |                  |                  | -.29***<br>(.000) |
| <b>Reengin.:<br/>Skill</b>      |                  |                  |                  |                  | .12**<br>(.046)   |
| <b>Adjusted R2</b>              | .01              | .02              | .03              | .03              | .06               |
| <b>N</b>                        | 2151             | 2094             | 1978             | 1954             | 1861              |

Significance levels: \*\*\*p=.001; \*\*p=.01; \*p=.05

Standard errors are in parentheses below the unstandardized regression coefficients.

## Appendix

### Questions Used to Construct Scales

#### Closeness to Layoffs

Concerning X Company layoffs, have you experienced any of the following over the last five years?

(yes-no format)

1. People you have worked closely with at X Company have been laid off.
2. Close friends at X Company have been laid off.
3. You've been laid off.
4. You've received a "warn notice."

#### Sense of Layoff Justice

1. During the last major round of layoffs, how fair was the procedure that X Company used to select those who were to be let go? (4-item response format, from "very fair" to "not fair at all")
2. During the last major round of layoffs, how well did X Company treat those who were let go? (4-item response format, from "very well" to "not well at all")

#### The Job Reengineering Experience

Eleven questions asking how much "the work you do has changed over the past two years." Each uses a 5-item response format, from "much more" to "much less." The scale for which each question is used is indicated in the parentheses with S=skill enhancement; W=work overload; C=computers; and A=autonomy.

1. using skills in new ways (S)
2. learning new technologies (S)
3. working on new problems and tasks (S)
4. upgrading skills and training (S)
5. working with less supervision (A)
6. taking on more responsibility for setting work goals (A)
7. working longer hours (O)
8. taking on tasks done by others in the past (O)
9. attending more meetings (O)
10. learning to use computers ©
11. learning new software programs ©

#### Sense of Mastery

1. I have little or no control over the things that happen to me.
2. There is really no way I can solve some of the problems I have.
3. There is little I can do to change many of the important things in my life.
4. I often feel helpless in dealing with the problems of life
5. Sometimes I feel that I'm being pushed around in life.

6. What happens to me in the future mostly depends on me.
  7. I can do just about anything I really set my mind to do.
- (4-item response format, from “strongly agree” to “strongly disagree”)

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<sup>1</sup> The literature for this claim will be cited below.

<sup>2</sup> Large companies are required by law to give at least 60 days notice to employees targeted for layoffs. Managers admitted that they handed out many more of these "warn notices" than were actually activated, an action that damaged employee morale more than was necessary.

<sup>3</sup> Approximately three-fourths of the items in the questionnaire are validated items used by other researchers or by us in the past, and widely discussed in the research literature. The remainder are items specific to this study, formulated after interviews and focus group sessions with employees. A preliminary version of the questionnaire was pretested on a sample of 104 employees from one work sector of the company. A focus group, organized from among employees who had participated in the pretest, helped analyze the questionnaire. No hesitancy was displayed by focus group participants in pointing out to the principal investigators mistakes, ambiguities and misunderstandings in the questionnaire.

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<sup>4</sup> This was done because our main focus in this study is on *layoff survivors*, those who have been through substantial layoffs but who continue to work for the firm. Because the last major round of layoffs occurred roughly 18 to 22 months prior to our survey, the “two year” filter allowed us to exclude new hires who had not experienced “downsizing.”

<sup>5</sup> Questions used to create these measures may be found in the Appendix.

<sup>6</sup> Our long term goal is to do such a comparative company study.

<sup>7</sup> The larger study, of which this paper is but a part, examines such “outcomes” as work performance, family-job conflict, mental health, political and community involvement, and problem behavior such as alcohol abuse.

<sup>8</sup> The overall design of this study is a longitudinal panel. We shall be able to test our prediction once the second wave of the survey is conducted.