

## Modeling the Antecedents of Proactive Behavior at Work

Sharon K. Parker

Australian Graduate School of Management,  
The University of New South Wales and  
the University of Sydney

Helen M. Williams

University of Leeds

Nick Turner  
Queen's University

Using a sample of U.K. wire makers ( $N = 282$ ), the authors tested a model in which personality and work environment antecedents affect proactive work behavior via cognitive-motivational mechanisms. Self-reported proactive work behaviors (proactive idea implementation and proactive problem solving) were validated against rater assessments for a subsample ( $n = 60$ ) of wire makers. With the exception of supportive supervision, each antecedent was important, albeit through different processes. Proactive personality was significantly associated with proactive work behavior via role breadth self-efficacy and flexible role orientation, job autonomy was also linked to proactive behavior via these processes, as well as directly; and coworker trust was associated with proactive behavior via flexible role orientation. In further support of the model, the cognitive-motivational processes for proactive work behavior differed from those for the more passive outcome of generalized compliance.

*Keywords:* proactivity, self-efficacy, autonomy, trust, flexible role orientation

Pressure for innovation, career models that require greater self-direction, and the growth of decentralized organizational structures all increase the need for employees to use their initiative and be self-starting (Campbell, 2000; Frese & Fay, 2001; Frohman, 1997; Ibarra, 2003; Parker, 2000). Such proactive behavior has been shown to lead to positive individual and organizational outcomes, such as sales performance (Crant, 1995), entrepreneurial behaviors (Becherer & Maurer, 1999), individual innovation (Seibert, Kraimer, & Crant, 2001), and small-firm innovation (Kickul & Gundry, 2002). As Crant (2000) suggested, because of its wide-ranging impact, proactive behavior has the potential to be a “high-leverage concept rather than just another management fad” (p. 435).

Despite the importance of proactive behavior, its antecedents are not well understood. Most attention has been given to reactive concepts of performance in which it is assumed that there is a set job to which an individual must be matched (Frese & Fay, 2001). For example, much research has been devoted to investigating the predictors of standard task performance (Viswesvaran, 2001) as well as citizenship behaviors (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). These concepts, however, have been criticized

for their emphasis on rather passive behaviors (Morrison & Phelps, 1999).

The present article aims to enhance researchers' understanding of the antecedents of proactive work behavior. It goes beyond previous research in two ways. First, in the present study, we simultaneously investigate both personality and the work environment as antecedents of proactive behavior. This is important because researchers presently do not know whether both types of antecedents play a unique role or their relative importance (Crant, 2000). For example, if personality is most important, then this suggests recruitment practices, rather than changes to the work environment, are the most powerful way to obtain a proactive workforce. Second, we test the importance of four cognitive-motivational variables as mediators of the effects of antecedents on proactive behavior. Understanding the motivational processes that underpin proactivity and identifying which are the key processes will help researchers to better manage and support this increasingly critical behavior.

### Proactivity in the Workplace

Proactive concepts have been operationalized at the individual level (e.g., Ashford & Tsui, 1991), team level (e.g., Simard & Marchand, 1995), and organizational level (e.g., Kickul & Gundry, 2002). Here, our outcome of interest is individual-level proactive work behavior. Despite different labels and theoretical underpinnings, concepts that relate to individual-level proactive behavior typically focus on self-initiated and future-oriented action that aims to change and improve the situation or oneself (Crant, 2000; Unsworth & Parker, 2003). Thus, Crant (2000) refers to proactive behavior as “taking initiative in improving current circumstances; it involves challenging the status quo rather than passively adapting present conditions” (p. 436). Frese, Kring, Soose, and Zempel's (1996) concept of personal initiative has a similar focus,

---

Sharon K. Parker, Australian Graduate School of Management, The University of New South Wales, Sydney, Australia; and the Department of Psychology, University of Sydney, Sydney, Australia; Helen M. Williams, Leeds University Business School, University of Leeds, Leeds, United Kingdom; Nick Turner, Queen's School of Business, Queen's University, Kingston, Ontario, Canada.

We thank the United Kingdom Health and Safety Executive for supporting the funding of this research and the participants in the research, colleagues, and managers who rated the proactive problem-solving items.

Correspondence concerning this article should be addressed to Sharon K. Parker, who is now at the Institute of Work Psychology, University of Sheffield, Western Bank, Sheffield S10 2TN, United Kingdom. E-mail: sharonp@agsm.edu.au

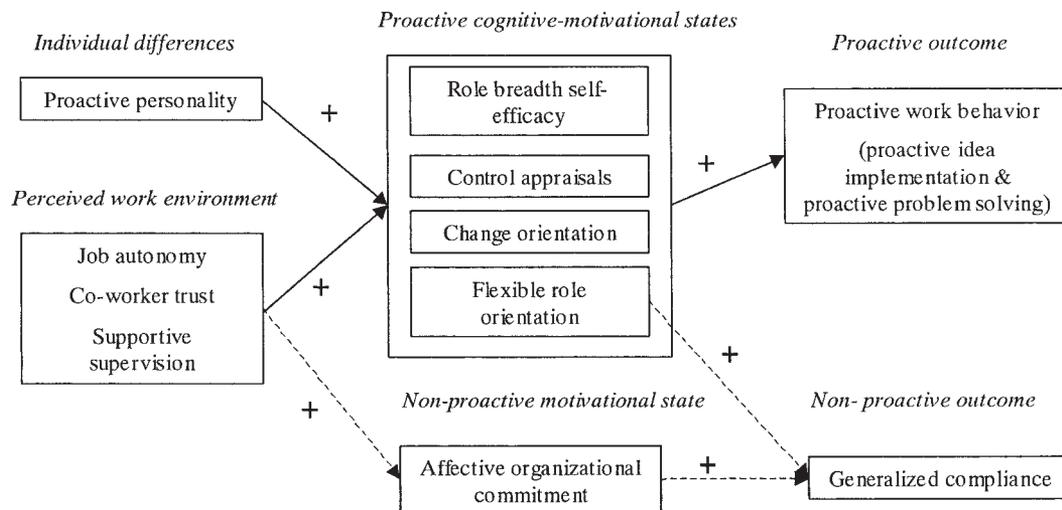


Figure 1. Proposed model of proactive work behavior. The variables and linkages depicted with dotted lines are included only for the purpose of establishing differential validity.

being defined as behavior that is self-starting (doing something without being told or without an explicit role requirement), proactive (having a long-term focus and anticipating future problems or opportunities), and persistent (overcoming barriers to bring about change). Taking charge (Morrison & Phelps, 1999) also has an action focus, but more specifically focuses on improving how work is executed. Related concepts are task revision (Staw & Boettger, 1990), role innovation (Schein, 1971), voice (Van Dyne & LePine, 1998), and transcendent behavior (Bateman & Porath, 2003). Collectively, Frese and Fay (2001) refer to these concepts as “active performance concepts” because, in contrast to traditional performance concepts that assume a given task or goal, these concepts imply that people can go beyond assigned tasks, develop their own goals, and adopt a long-term perspective to prevent problems.

A confusing element in the literature is that proactive behavior has sometimes been defined as a type of contextual performance or extra-role behavior (e.g., Morrison & Phelps, 1999; Speier & Frese, 1997). However, more recent work challenges this thinking. Crant (2000); Griffin, Neal, and Parker, (in press); and Frese and Fay (2001) have argued that employees can engage in all work activities, including both task and contextual elements, with different degrees of proactivity. There is thus a growing consensus that there is no need to confine proactivity to the contextual domain only.

In this article, we consider two dimensions of proactive behavior. The first, *proactive idea implementation*, involves an individual taking charge of an idea for improving the workplace, either by voicing the idea to others or by self-implementing the idea.<sup>1</sup> The second, *proactive problem solving*, refers to self-starting, future-oriented responses that aim to prevent the reoccurrence of a problem (such as by addressing its root cause) or that involve solving it in an unusual and nonstandard way. As this definition implies, exactly what behaviors are “proactive” will be influenced by the context because what is unusual and nonstandard in one environment may be a routine approach in another situation (Frese & Faye, 2001).

### Proposed Model of Proactive Work Behavior

The model we test (see Figure 1) proposes that individual differences and work environment variables affect proactive cognitive-motivational states, which, in turn, lead to proactive behavior. This model concurs with Frese and Fay (2001), who, drawing on Kanfer (1992), proposed personality and environment variables as distal causes of proactive behavior that have an effect via more proximal variables such as self-efficacy. Similarly, Parker and colleagues (Axtell & Parker, 2003; Parker, 1998, 2000; Parker, Wall, & Jackson, 1997) suggested that antecedents like job autonomy affect states such as role breadth self-efficacy, which, in turn, lead to proactive behavior. The hypothesized role of such cognitive-motivational states is consistent with social-cognitive theory, which proposes that humans are reflective, self-regulating agents who are not only products but also producers of their environment (Bandura, 1982). It is also consistent with job design theory, which proposes that job characteristics affect outcomes via critical psychological states (Hackman & Oldham, 1976).

In a contrasting theoretical model of proactive behavior, Crant (2000) proposed that motivational states (e.g., role breadth self-efficacy) and contextual factors (e.g., management support, organizational culture) affect proactive behaviors directly.<sup>2</sup> Likewise, in an empirical investigation, Morrison and Phelps (1999) found support for both motivational variables (self-

<sup>1</sup> The importance of self-implementation of ideas, as opposed to just suggesting ideas (e.g., via a suggestion scheme), was identified by Frese et al. (1999), who argued that individuals with sufficient autonomy may implement their own ideas rather than voice them to others. Note that proactive idea implementation could represent part of an innovation process, although this behavior is not necessarily innovative because the latter is typically more stringently defined in terms of the novelty and utility of the idea.

<sup>2</sup> We differ from Crant (2000) in that we define *taking charge* and *personal initiative* as behavioral outcomes rather than as individual-difference variables.

efficacy and felt responsibility) and contextual determinants (top-management openness) as antecedents of taking charge. However, these researchers did not test whether the effects of the contextual determinants on taking charge were mediated through the individual variables of self-efficacy and felt responsibility. Our model differs because it suggests that distal variables have their effects through cognitive-motivational states such as self-efficacy. We elaborate on the potential role of these mediating processes next and then describe the distal antecedents that affect them.

### *Cognitive-Motivational States and Proactive Work Behavior*

On the basis of an analysis of existing research on proactive concepts (e.g., personal initiative, taking charge, individual innovation, voice, issue selling), we identified two processes that are likely to underpin proactive work behavior. First, engaging in proactive behaviors is likely to involve a deliberate decision process in which the individual assesses the likely outcomes of these behaviors. Drawing on expectancy theory (Vroom, 1964), Morrison and Phelps (1999) argued that taking charge involves a calculated decision process in which individuals assess the likelihood that they will be successful as well as the likely consequences of their action, such as whether the risks of taking charge outweigh the benefits. They found support for two variables related to these judgments: generalized self-efficacy and felt responsibility for change. Similarly, drawing on action theory (Hacker, 1985) and social-cognitive theory, Frese and Fay (2001) argued that individuals are motivated to use their initiative if they believe they will be in control of the situation (control appraisals) and of their own actions (self-efficacy; see also Parker, 2000) and if they believe they can deal with the potential negative consequences of using their initiative (change orientation).

A second process that emerged from our review is that one “approaches” proactive behavior because one sees this behavior as important for fulfilling one’s responsibilities, goals, or aspirations. This theme fits with broader motivational theories, such as goal-setting theory (Locke & Latham, 1990) and social-cognitive theory (Bandura, 1986), and relates to Crant’s (2000) recommendation to consider the role of goals in proactive behavior. Thus, Frese and Fay (2001) proposed that, as well as needing to feel in control of a situation, individuals will be motivated to “approach” initiative if they desire control and are willing to accept responsibility. In a similar vein, Parker (2000) proposed that individuals who define their role broadly so that they feel responsibility for longer term goals (i.e., have a “flexible role orientation”) will be more motivated to engage in proactive behaviors that help to achieve longer term goals than individuals who define their role more narrowly.

On the basis of the above analysis, we chose to focus on three cognitive-motivational variables that reflect one’s assessments about the likely outcomes of engaging in proactive behaviors (role breadth self-efficacy, control appraisals, and change orientation) as well as on one variable (flexible role orientation) that reflects one’s goals, responsibilities, and aspirations within the work environment. All of these states are action oriented, internal states that are assumed to be malleable. All are con-

ceptualized at an intermediate level of specificity rather than being highly specific (e.g., toward a particular task) or representing a more general disposition. We develop the arguments for each variable next.

*Role breadth self-efficacy.* *Self-efficacy*, or one’s judgment about one’s capability to perform particular tasks, is a critical work motivation variable (Gist & Mitchell, 1992). Individuals who feel capable of performing particular tasks tend to carry them out more effectively (Barling & Beattie, 1983), persist at them (Lent, Brown, & Larkin, 1987), cope more effectively with change (Hill, Smith, & Mann, 1987), choose more difficult goals (Locke & Latham, 1990), and adopt more efficient task strategies (Wood, George-Falvy, & Debowksi, 2001). Because it raises one’s feelings of control and the perceived likelihood of success, self-efficacy is seen as crucial for proactive behaviors like initiative (Speier & Frese, 1997) and taking charge (Morrison & Phelps, 1999) as well as for related behaviors such as dissent (Graham, 1986) and voice (Withey & Cooper, 1989).

An issue with the few existing studies linking self-efficacy and proactive behavior is that they use a concept of generalized self-efficacy, which is a global competence belief that is not specific to a situation and that is relatively stable over time (Chen, Gully, Whiteman, & Kilcullen, 2000). Yet, self-efficacy is recognized as a relatively malleable, task-specific belief (Mitchell & Daniels, 2003). In this study, we focus on self-efficacy within a specific situation (i.e., the individuals’ work role), but we focus on a range of tasks rather than on a single task. Specifically, we used Parker’s (1998) concept of role breadth self-efficacy, which refers to one’s perceived capability of carrying out a range of proactive, interpersonal, and integrative activities that extend beyond the prescribed technical core. Role breadth self-efficacy has been shown to be associated with outcomes such as proactive work performance (e.g., Griffin et al., in press) and making improvement suggestions (Axtell et al., 2000). It has also been shown to be malleable (Axtell & Parker, 2003; Parker, 1998).

*Control appraisals.* Frese and Fay (2001) proposed control appraisals as a further important psychological state for promoting proactivity. *Control appraisals* refer to individuals’ expectations that they will feel control over situations and particularly that they can have an impact on work outcomes. Frese and Fay argued that an individual with this type of orientation will have a strong sense of responsibility, will not give up easily, will search for opportunities to act, should have high hopes for success (and therefore a longer term perspective), and will actively search for information. In a four-wave longitudinal study, Frese, Garst, and Fay (2000, as cited in Frese & Fay, 2001) showed that control appraisals led to greater personal initiative.

*Change orientation.* Because personal initiative can lead to change, errors, and demands, Frese and Fay (2001) proposed the importance of motivational states that relate to dealing with negative consequences of proactive behavior, such as having an active orientation toward change and a positive approach toward errors. We focus on having an active orientation toward change given that the proactive behaviors of interest here (proactive idea implementation and proactive problem solving) involve changing the work

environment.<sup>3</sup> An active-change orientation is similar to “felt responsibility for change,” or “an individual’s belief that he or she is personally obligated to bring about constructive change” (Morrison & Phelps, 1999, p. 407). Morrison and Phelps argued that those with high felt responsibility for change will perceive taking charge positively because it provides a sense of personal satisfaction and accomplishment. Both active-change orientation and felt responsibility for change have been shown to predict proactive behavior (Frese & Plüddemann, 1993, as cited in Frese & Fay, 2001; Morrison & Phelps, 1999).

*Flexible role orientation.* Individuals with flexible role orientations define their roles broadly and, as such, feel ownership of goals and problems beyond their immediate set of technical tasks, seeing them as “my job” rather than as “not my job” (Parker et al., 1997). The importance of a flexible role orientation is highlighted by Campbell (2000), who argued that proactive employees have a “commitment to unit goals, a sense of responsibility for unit success,” which is “closely tied to their feelings of ownership of the unit, its goals, and its processes” (p. 54). Flexible role orientation is similar to the concept of experienced responsibility for outcomes of work (one of the critical psychological states identified by Hackman and Oldham, 1976, in the job characteristics model). However, rather than focusing on the degree of experienced responsibility with respect to core tasks, flexible role orientation is concerned with the breadth of experienced responsibility, or how far one’s “psychological” role extends beyond achieving basic technical goals.

We propose flexible role orientation as an important determinant of proactive work behavior. Employees with flexible role orientations are more likely to engage in proactive problem solving and the pursuit of improvement in domains beyond their narrow set of tasks. They have a higher sense of personal responsibility for a broader range of goals and, therefore, will feel a sense of accomplishment when helping to achieve these goals through proactive behavior. Evidence supports the importance of flexible role orientation in promoting proactive behaviors such as idea generation (Howell & Boies, 2004) and suggestion making (Axtell et al., 2000).

In summary, few studies have examined the mediating role of cognitive-motivational states in the link between distal antecedents and proactive behavior. Of the few studies that exist, most have considered only one or two mediating variables at a time, thus, we do not know whether the variables have unique effects or which are most important. We hypothesize the following:

*Hypothesis 1:* Role breadth self-efficacy, control appraisals, change orientation, and flexible role orientation will be positively and uniquely associated with proactive work behavior.

### *Distal Antecedents and Proactive Work Behavior*

The next part of the model concerns the effect of distal antecedents on proactive behavior via the cognitive-motivational states. We consider both work environment antecedents and individual-difference antecedents simultaneously. Our choice of antecedents derived from an analysis of existing research as well as consideration of variables that theoretically affect the mediators.

*Work environment antecedents.* Drawing on Frese and Fay (2001), we focus on two categories of the work environment: job

autonomy and a supportive climate. Because the latter is a rather general concept, we investigate specific dimensions that are likely to be important in the present context, including supportive supervision and coworker trust.

Job autonomy has been identified as an important determinant of proactive outcomes, including personal initiative (Frese et al., 2000; 1996), voice (Van Dyne & LePine, 1998), and suggesting improvements (Axtell et al., 2000).<sup>4</sup> We propose that job autonomy has its effect on proactive behavior via the cognitive-motivational states. Theory and evidence is particularly compelling for the link between job autonomy and self-efficacy. Bandura (1982) suggested that four categories of experience are used in the development of self-efficacy, one of which is enactive mastery, or repeated performance success. Parker (1998) argued that autonomy provides a source of enactive mastery experience because it gives employees the opportunity to acquire new skills and master new responsibilities. In addition, the level of controllability of a situation influences self-efficacy, with more controllable tasks boosting self-efficacy (Gist & Mitchell, 1992). Autonomy directly increases the controllability of a task. Thus, job autonomy might raise self-efficacy through increasing both enactive mastery and the controllability of one’s tasks. In support of this, studies show that job autonomy and enrichment enhance self-efficacy (Axtell & Parker, 2003; Parker, 1998; Speier & Frese, 1997) and that self-efficacy mediates the link between job autonomy/complexity and personal initiative (Frese et al., 2000, as cited in Frese & Fay, 2001).

Job autonomy might also promote proactivity via the development of flexible role orientations. When individuals have an influence over a broader range of decisions, they develop ownership for these decisions and the longer term goals that they support. Parker et al. (1997) showed that employees whose jobs became more autonomous as a result of self-managing teams also developed more flexible role orientations. A similar line of reasoning can be applied to change orientation. Greater job autonomy might make one feel more receptive to change because one feels less threatened by change if one has some influence over it (Cunningham et al., 2002). Job autonomy also promotes positive affect, such as higher job satisfaction (Parker & Wall, 1998), which could enhance openness to change. Devolving autonomy could also signal to employees that managers trust them, leading to more favorable attitudes toward management-initiated change. Finally, job autonomy can enhance control appraisals because if an individual has discretion over core aspects of their job, then they are likely to feel that their future work outcomes are more controllable (Parker & Sprigg, 1999). Frese et al. (2000, as cited in Frese & Fay, 2001) showed that control appraisals mediated the link be-

<sup>3</sup> In addition, we do not include handling errors and active coping as mediating orientations, as proposed by Frese and Fay (2001) because we consider these to be examples of proactive behaviors, rather than cognitive-motivational states.

<sup>4</sup> An exception is Frese et al. (1999), who found a slight negative association between job control/complexity and having ideas for a suggestion scheme. They suggested that those with high control/complexity can change things themselves and so may not need to participate in such a scheme.

tween job autonomy/complexity and personal initiative. We hypothesized further that:

*Hypothesis 2a:* Job autonomy will be positively associated with proactive work behavior.

*Hypothesis 2b:* Job autonomy will be positively associated with role breadth self-efficacy, control appraisals, change orientation, and flexible role orientation.

*Hypothesis 2c:* The effect of job autonomy on proactive behavior will be mediated by the cognitive-motivational states.

We also suggest that coworker trust will facilitate proactive behavior. To our knowledge, no research to date has focused on this specific relationship, although related findings support our proposition. At the individual level of analysis, Clegg, Unsworth, Epitropaki, and Parker (2002) found that trust in the organization predicted innovative behavior. At the organizational level, Baer and Frese (2003) found a climate for initiative to be important for innovation and suggested that one reason such a climate might have an effect is through peers encouraging personal initiative.

In this vein, we propose that coworker trust will affect proactive behavior via the cognitive-motivational states. First, if individuals feel that their relationship with colleagues is characterized by trust, then they are likely to gain confidence in their own abilities: "If they believe in me, I should believe in me." Trust implies that coworkers will accept mistakes as learning experiences (Costigan, Iltner, & Berman, 1998), which is likely to encourage individuals to try things beyond core tasks and enhance their role breadth self-efficacy. Second, if individuals have trust in coworkers' abilities and believe other coworkers will support them, then they are likely to feel more open to change and in control. Finally, flexible role orientation is about owning broader goals beyond one's core job. Given that trust embodies risk taking (McAllister, 1995), individuals who feel trust in their coworkers are more likely to "take the risk" to feel ownership for these aspects. We hypothesize, then, that:

*Hypothesis 3a:* Coworker trust will be positively associated with proactive work behavior.

*Hypothesis 3b:* Coworker trust will be positively associated with role breadth self-efficacy, control appraisals, change orientation, and flexible role orientation.

*Hypothesis 3c:* The effect of coworker trust on proactive behavior will be mediated by the cognitive-motivational states.

We investigate supportive supervision as a third environmental antecedent of proactivity. There is conflicting theory and evidence surrounding this antecedent. On the one hand, it can be difficult for supervisors to support proactive behavior for their employees because some proactive behaviors can be threatening, such as when employees question supervisors' decisions and challenge accepted practices (Frese & Fay, 2001). Consequently, Frese and Fay (2001) suggested supervisory behaviors might not be as important as other practices for enhancing proactivity, which is

consistent with Frese, Teng, and Wijnen's (1999) study, which showed no effect of supervision on employees' initiative. On the other hand, other researchers have suggested that supervisory support is important in stimulating proactive behaviors (Crant, 2000). In a context of self-managing team work, Manz and Sims (1987) showed the importance of managers "leading others to lead themselves" (p. 119) via, for example, encouraging employees to be aware of their own performance, to have high expectations, and to set their own goals. Few studies have directly tested the effect of supervisor behavior on proactivity, although supportive supervision has been shown to affect related behaviors such as creativity (Amabile, Conti, Coon, Lazenby, & Herron, 1996) and voice (Gorden, Infante, & Graham, 1988).

The conflicting opinion and evidence about the role of supervisory support in promoting proactive behavior may in part represent a failure to consider what appropriate "support" is for this type of performance. Some traditional supervisory aspects included in assessments of supportive supervision may be unimportant or even encourage passivity, such as implementing suggestions made by employees. Although implementing suggestions can be "supportive," it may also reduce employees' motivation to realize the idea themselves and reinforce the need to defer change to supervisors, thereby lowering expectations for employees' self-starting behaviors. In contrast, other supportive behaviors, such as those that help individuals to be self-directed and self-managing, are likely to enhance proactivity (Manz & Sims, 1987). In the present study, we focus on supportive leadership that involves these latter behaviors rather than traditional supervisory behaviors. We expect that behaviors such as encouraging high expectations will enhance control appraisals and self-efficacy and that encouraging self-observation and self-goal setting will promote flexible role orientations and positive orientations toward change. We hypothesize that:

*Hypothesis 4a:* Supportive supervision will be positively associated with proactive work behavior.

*Hypothesis 4b:* Supportive supervision will be positively associated with role breadth self-efficacy, control appraisals, change orientation, and flexible role orientation.

*Hypothesis 4c:* The effect of supportive supervision on proactive behavior will be mediated by the cognitive-motivational states.

*Individual differences.* Individual-difference antecedents are more stable, enduring, and general in their effects than are cognitive-motivational states. Although several such variables have been proposed as antecedents of proactivity (e.g., need for achievement), the most relevant is proactive personality, or the relatively stable behavioral tendency to identify opportunities, show initiative, take action, and to persevere to bring about change (Bateman & Crant, 1993). Focusing on proactive personality is consistent with recent arguments about bandwidth, which propose that the most useful traits are narrow ones that are selected because of their theoretical applicability to the dependent variable (Ashton, 1998). Proactive personality has been shown to predict proactive outcomes such as career success (Seibert et al., 1999) and entrepreneurial behavior (Becherer & Maurer, 1999).

However, few studies have examined personality alongside work environment variables (Crant, 2000). Also, in spite of predictions that proactive personality has its effects on behavior via cognitive-motivational states (Frese & Fay, 2001; Parker, 2000), no studies have examined these mediating pathways. Yet, studies show proactive personality to be positively correlated with role breadth self-efficacy (Parker, 1998), mastery (similar to control appraisals; Parker & Sprigg, 1999), and flexible role orientation (Parker & Sprigg, 1999). It is also logical to expect that individuals with a proactive personality will have a positive, open orientation toward change. Therefore, we hypothesize that:

*Hypothesis 5a:* Proactive personality will be positively associated with proactive work behavior.

*Hypothesis 5b:* Proactive personality will be positively associated with role breadth self-efficacy, control appraisals, change orientation, and flexible role orientation.

*Hypothesis 5c:* The effect of proactive personality on proactive behavior will be mediated by the cognitive-motivational states.

### Tests of Differential Validity

To show that the proposed cognitive-motivational processes that underpin proactive behavior are distinct from those for other behaviors, we included an additional outcome variable (generalized compliance) and an additional mediating variable (affective organizational commitment).

Generalized compliance is one of the major facets of organizational citizenship behavior (Organ, 1988). It refers to scrupulous adherence to rules, regulations, and procedures that, although not necessarily helping any specific individual, can help the overall system (Podsakoff et al., 2000). In common with proactive behavior, generalized compliance involves going above and beyond what most employees do. However, given its emphasis on adherence to rules, compliance represents a much more passive set of behaviors. As such, we expect generalized compliance to be underpinned by different cognitive-motivational processes than proactive behavior.

In particular, we did not expect those cognitive-motivational variables that reflect assessments about the likelihood of success of proactive behavior or its consequences (i.e., role breadth self-efficacy, control appraisals, or change orientations) to predict compliance. Self-efficacy motivates performance of specific rather than generalized tasks; as such, there is no reason to expect that one's confidence in carrying out integrative, interpersonal, and proactive tasks will predict behaviors like punctuality. Similarly, expectations of control (control appraisals) are not likely to motivate compliance (indeed, one could speculate that strict adherence to rules might be motivated by low control appraisals as a way of increasing one's sense of control). Finally, generalized compliance focuses on adhering to well-established rules and procedures (which require little need for adapting to change) and therefore is not likely to require an open and positive change orientation.

We did, however, expect flexible role orientation to predict compliance. As noted above, generalized compliance behaviors contribute to the overall system rather than to any individual's

performance. Individuals with a flexible role orientation have a high level of ownership of the whole system and its goals and, hence, are likely to engage in both more proactive behaviors and more compliance behaviors because both types of actions contribute to the achievement of broader goals.

We also included affective organizational commitment as an additional mediating variable. *Affective organizational commitment* refers to the degree of identification, involvement, and emotional attachment that an individual has to their employing organization (Meyer & Allen, 1997). Affective commitment has been identified as a general affective "morale" factor that, along with job satisfaction and other such variables, is a critical antecedent of citizenship (Organ & Ryan, 1995). Findings from meta-analyses show a significant positive correlation between affective commitment and generalized compliance (Podsakoff et al., 2000). However, a high level of positive affect toward the organization does not necessarily mean an individual will engage in proactive behavior. Indeed, Frese and Fay (2001) argued that it is often negative affect, such as dissatisfaction, that stimulates proactive behavior. Parker (2000) also argued that, although commitment is often operationalized in terms of a desire to "put in extra effort," the direction of extra effort is not considered and could be applied toward relatively passive behaviors. We thus expected organizational commitment to positively relate to generalized compliance but not to proactive behavior.

Although this is not core to the present article, given its focus on proactivity, we expected, based on previous research, that organizational commitment would be predicted by job autonomy (Dunham, Grube, & Castañeda, 1994; Meyer, Bobocel, & Allen, 1991), supportive supervision (e.g., Bycio, Hackett, & Allen, 1995), and coworker trust (e.g., Ferrer, Connell, & Travaglione, 2004).

## Method

### Organizational Background and Sample

The main sample was 282 production employees in a wire-based manufacturing company in the United Kingdom who completed a survey. The sample was all male, with a mean age of 41.12 years ( $SD = 10.19$ ) and a mean tenure of 10.73 years ( $SD = 10.15$ ). The survey was administered to employees by researchers in group sessions during work time. Confidentiality was emphasized. The response rate was over 70%. Prior to the survey, team working had been introduced within the production department. This initiative was perceived to have had mixed success, with positive effects on job content in some areas but little or no effect in most areas.

### Measures Used for Discriminant Validity Analyses

*Generalized compliance* was assessed using the four highest loading items, with slight adaptations, from Smith, Organ, and Near's (1983) measure of this variable ( $\alpha = .85$ ). The items assessed whether employees agreed or disagreed that, in general, they try (a) to keep good attendance at work, (b) to be punctual at work, (c) not to take unnecessary time off work, and (d) not to take extra breaks. *Affective organizational commitment* was assessed using six items ( $\alpha = .73$ ) from the extensively used Cook and Wall (1980) measure of commitment. Respondents indicated on a 5-point scale whether they agreed or disagreed with four statements such as "I feel myself to be part of this company" and "I am quite proud to tell people who it is I work for." For both of these measures, the response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

### Measure of Proactive Work Behavior

In the present article, we assessed the dimensions of proactive work behavior (proactive idea implementation and proactive problem solving) using context-appropriate measures. We did this for two reasons. First, identifying a behavior as “proactive” depends partly on the context. Frese and Fay (2001) gave the example that developing a total quality management program may constitute self-starting behavior for a manager within an African context given what is normal and expected, whereas the same action by an American entrepreneur may not be self-starting because it is simply following the lead of others. Second, relative to using value-laden general statements (e.g., “I make things happen”), a context-specific approach is more likely to result in a valid self-assessment because the socially desirable responses are less obvious.

*Proactive idea implementation* was assessed using elements of a broader measure in the survey. First, individuals indicated how many “new ideas” they had had in the last 12 months (on a scale ranging from no new ideas, one or two new ideas, 3–10 new ideas, to more than 10 new ideas) about each of five important goals: saving money or cutting down costs, improving quality, improving customer delivery times, making a better product, and working together effectively. Second, if individuals had had at least one new idea, then they were asked whether they had (a) put the idea/s forward to anyone and, if so, to whom (no; yes—to my colleagues; yes—to a manager, supervisor, or other); and (b) whether the idea/s was generally implemented and by whom (no; yes—by myself; yes—by others). This meant that, for each goal, there were two possible proactive responses: suggesting ideas to someone and self-implementing the idea.<sup>5</sup> For each goal, an individual scored 1 if they indicated they had engaged in at least one of these proactive actions and 2 if they had engaged in both. A score of 0 indicates either that the individual had no ideas (an individual cannot proactively implement ideas if they do not have any ideas in the first place) or that they had come up with new ideas but did not suggest them to anyone or self-implement them (whereas this might be considered creative, it cannot be considered proactive because there was no attempt to change the situation). Responses were averaged across the five goals. Scores ranged from 0 to 1.55, with a mean of 0.18 ( $SD = 0.30$ ). The measure of proactive idea implementation was skewed, with most respondents scoring zero. (Note that transformation of this variable did not change the findings.)

*Proactive problem solving* was assessed using problem-solving scenarios designed for the context. There were three scenarios: “when you are supplied with poor quality wire/rods”; “when reject/scrap levels are increasing in your area”; and “when your machine breaks down.” Individuals were asked to indicate what response they would “usually” make in the face of these scenarios. Each scenario had eight behavioral responses to choose from. Individuals were able to pick more than one response but were instructed to “only pick things you would be very likely to do.” The behavioral responses included not only common strategies that individuals engaged in but also passive and proactive strategies that were less common, yet were possible responses.

Of the set of 24 behavioral responses, we identified the most “proactive” in the following way: Twenty external raters (10 organizational behavior experts and 10 managers from a range of organizations) were given information about the context and the meaning of proactivity (see Appendix A). Each rater then coded all 24 behaviors on a 5-point scale: 1 = *passive*, 2 = *somewhat passive*, 3 = *neither passive nor proactive*, 4 = *somewhat proactive*, and 5 = *proactive*. They also indicated their confidence in the accuracy of their rating on a scale ranging from 1 (*not at all confident*) to 5 (*very confident*). The raters consistently identified seven behaviors as proactive (i.e., the behaviors had an average rating across raters of 4 and above), and all of these were categorized confidently (i.e., had a mean level of confidence greater than 4). The behaviors included aspects such as trying to find the root cause of a problem (e.g., “try to figure out why the supply of wire/rods are poor quality”), engaging in preventative action (e.g., “try to sort out the problem so it won’t happen

again”), and being self-starting (e.g., “make suggestions to relevant people as to why reject is high”).

Having identified the behaviors that were clearly and confidently identified as proactive by independent raters, we then checked how often they were indicated by the respondents. Proactive responses to problems are nonstandard and unusual responses, so these options should be chosen relatively infrequently. This was the case for five of the seven “proactive” items, which were indicated by fewer than 30% of employees as a response they would usually engage in (the other two items were identified by 37% and 41% of employees and were excluded from the final scale). These five items were selected for the measure of proactive problem solving (see Appendix B). By way of contrast, 80% of respondents indicated they would “call the fitters” if their machine broke down (a response indicated as somewhat passive by raters,  $M = 2.7$ ), and over 50% indicated they would “inform their team leader” if they were supplied with poor quality rods (a response identified as passive by raters; i.e., an  $M = 1.8$ ). A proactive problem-solving score was then computed for participants. A score of 1 was allocated for each proactive behavior indicated. Averaged across the five items, proactive problem-solving scores ranged from 0 (*no proactive responses indicated*) to 1 (*all proactive responses chosen*). The mean score was 0.27 ( $SD = 0.26$ ).

Evidence of the construct validity of these scales was gathered. First, proactive idea implementation and proactive problem solving were moderately and positively correlated ( $r = .36$ ,  $p < .01$ ). Also, as would be expected given its passive emphasis, neither subdimension was significantly correlated with generalized compliance ( $r_s = .11$  and  $.09$ , respectively). Second, the two-component solution for a principal-components analysis of items confirmed that the proactive items formed a single component and were distinct from generalized compliance items (see Appendix B). Third, because of potential problems of social desirability with any type of self-report scale, we interviewed a random subsample of 60 employees to assess their proactivity.

Specifically, we used a situational interview technique (Latham & Saari, 1984) with a high degree of probing to obtain more specific and less socially desirable responses than those that might be obtained via a questionnaire. In interviews lasting between 20 and 60 min, the interviewer, who was blind to survey responses, took notes that were later used as the basis of rating the employees. Participants were asked to list the barriers that hindered their effectiveness (e.g., poor quality materials). Then, for at least three of the barriers mentioned, participants were asked to describe how they dealt with the problem. The interviewer then asked what they would do if that strategy did not work (this probe was used twice), after which participants were asked whether they could think of any further ways of dealing with the problem. Participants were asked via another set of relevant interview questions whether they had had any ideas for improving their work environment (e.g., improving quality). If participants indicated that they did have ideas, then they were asked for more detail, including whether they had suggested the idea to anyone and to whom and whether their idea had been implemented by themselves or others. After the interview, the interviewer rated participants on (a) the degree to which they exhibited self-starting behavior aimed at improving their work situation on a scale ranging from 1 (*passive approach to problems/goals, e.g., ignores, passes problem to someone else*) to 5 (*self-starting approach to problems/goals, e.g., perseveres*) and (b) the extent to which the individuals are future oriented in their attempts to change and improve their work situation ranging from 1 (*reactive, e.g., reacts to problems or takes corrective actions only*) to 5 (*preventative/planning oriented, e.g., anticipates, tries to prevent, tries to get to the root cause*). These aspects of proactive behavior were highly intercorrelated ( $r = .77$ ,  $p < .01$ ).

<sup>5</sup> An idea being “implemented by others” does not necessarily involve proactive action on the part of the individual.

The average of these external assessments of proactivity was then correlated with the outcome variables assessed via the survey. Both proactive idea generation and proactive problem solving had significant positive correlations with external ratings of proactivity ( $r = .51, p < .01$ ;  $r = .25, p < .05$ , respectively). These dimensions were combined into an overall measure of proactive work behavior by standardizing the measures and summing them. The reliability of this overall measure, calculated using Cronbach's (1951) parallel forms reliability formula that has been recommended for multidimensional scales (see Rogers, Schmitt, & Mullins, 2002), was .77. The correlation between this overall measure of proactive work behavior and external ratings was .45 ( $p < .01$ ). Providing evidence of discriminant validity, generalized compliance was not significantly correlated with external ratings of proactivity ( $r = -.06$ ). Overall, these results provide good evidence that employees' self-reported assessments of their proactivity are meaningful.

### Measures of Cognitive-Motivational Variables and Antecedents

*Role breadth self-efficacy* ( $\alpha = .93$ ) was assessed using the seven highest loading items from Parker's (1998) measure of this construct. Employees were asked how confident they would feel carrying out a range of proactive, interpersonal, and integrative tasks (see Appendix C for a full set of items for this and all other cognitive-motivational and antecedent measures). The response scale ranged from 1 (*not at all confident*) to 5 (*very confident*). This measure has been shown to be distinct from both related concepts, such as proactive personality and self-esteem (Parker, 1998), and affective reaction variables, such as job satisfaction (Parker, 2000).

*Control appraisals* ( $\alpha = .83$ ) refers to a belief that one can control and have an impact on work outcomes. Four items were used to assess this concept on a scale ranging from 1 (*not true at all*) to 5 (*very true*). Evidence from our study supported the scale's validity. Using a sample of 50 managers from the company (managers are not included in the main sample), managers had higher control appraisals ( $M = 4.07, SD = 0.69$ ) than production employees ( $M = 3.15, SD = 1.03$ ),  $t(330) = 6.07, p < .01$ . This difference is expected because managers have greater authority to make decisions. Also, individuals working shifts should report lower control appraisals relative to those working days because the latter have access to more resources (e.g., management support) to address problems. This was the case: Shift workers had significantly lower control appraisals ( $M = 3.11, SD = 1.00$ ) than day workers ( $M = 3.75, SD = 1.08$ ),  $t(254) = 2.64, p < .001$ . Finally, we expected that feelings of control appraisal would be negatively related to psychological strain because previous research has established strong links between these variables. Consistent with this, control appraisals negatively predicted Warr's (1990) measure of psychological strain ( $r = -.44, p < .01$ ).

*Change orientation* ( $\alpha = .74$ ) was assessed by the extent to which individuals agreed or disagreed with five items about change. The items were designed to be less susceptible to social desirability bias than items often used to assess similar concepts. Specifically, responses suggesting a low change orientation were designed to sound "legitimate" (e.g., "tried and tested ways of doing things are usually the best"; reverse scored). Nevertheless, because the measure of change orientation is not a standard scale, we investigated its validity. First, as would be expected since managers have greater influence over change processes, managers had a higher change orientation ( $M = 3.69, SD = 0.63$ ) than production employees ( $M = 2.85, SD = 0.72$ ),  $t(330) = 7.74, p < .01$ . Second, as expected, change orientation was positively correlated with receptiveness to the particular change initiative being introduced in the organization, namely, team working. Thus, change orientation was positively correlated with items such as "I think that working as a member of a team increases one's ability to work effectively" ( $r = .29, p < .01$ ). Finally, we found, as expected, that those employees who reported having applied to become a

team leader (suggesting a willingness to change one's role and responsibilities) had higher change orientation scores ( $M = 3.06, SD = 0.63$ ) than those who had not applied ( $M = 2.77, SD = 0.74$ ),  $t(220) = 2.06, p < .05$ .

*Flexible role orientation* ( $\alpha = .90$ ) was assessed using items adapted from Parker et al.'s (1997) measure of production ownership that was designed to assess this construct. Employees were asked to indicate the extent to which various problems reflecting longer term goals would be of personal concern to them rather than "someone else's concern". The response scale ranged from 1 (*to no extent-of no concern to me*) to 5 (*very large extent-most certainly of concern to me*). A higher score on the total scale indicates ownership of work-unit goals beyond one's immediate technical job and therefore indicates a more flexible role orientation. A low score suggests a "that's not my job" orientation. This measure of role orientation has been shown to be reliable and valid, and to be amenable to change over time (Parker, 2000; Parker et al., 1997). In the present study, three additional items (concerning levels of team absence, levels of scrap, and presence of safety hazards) were included because management wished employees to take greater ownership over these goals.

*Job autonomy* ( $\alpha = .85$ ) was assessed via nine items concerning the extent to which the employee was involved in making decisions within the team. The response scale ranged from 1 (*not at all*) to 5 (*a great deal*). The items were identified from literature on autonomous work groups (e.g., Parker & Wall, 1998) as well as from discussions with individuals in the company. We opted not to use the measures of timing and method control that are commonly used to assess job autonomy in production contexts (e.g., Jackson, Wall, Martin, & Davids, 1993), as these dimensions were strongly constrained by the wire-making technology and were less likely to be affected by team working.

*Coworker trust* ( $\alpha = .75$ ) was assessed by three items from Cook and Wall's (1980) measure of interpersonal trust as well as by an additional item to capture the more affect-based dimension of trust, as recommended by McAllister (1995; "there is a great deal of trust among members of my team"). The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Supportive supervision* ( $\alpha = .93$ ) was assessed via four items from Manz and Sims's (1987) Self-Management Leadership Questionnaire. The items covered the four major aspects that were identified by Manz and Sims as enhancing leader effectiveness in a self-managing context. These concerned whether the supervisor encourages employees to engage in self-goal setting, self-reinforcement, self-expectation, and self-observation/evaluation. The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Proactive personality* ( $\alpha = .87$ ), defined as the relatively stable tendency to effect environmental change, was assessed using four of the highest loading items in Bateman and Crant's (1993) scale. The responses ranged from 1 (*not true at all*) to 5 (*very true*). Proactive personality has been shown to be distinct from other personality concepts (such as need for achievement and locus of control), to be able to differentiate among individuals, and to be significantly associated with an array of relevant criterion variables (Bateman & Crant, 1993).

An exploratory factor analysis of the items used to assess the antecedents and cognitive-motivational variables showed that these items represented discrete scales.<sup>6</sup> Using principal-axis factoring and varimax rotation, the eight-factor solution accounted for 55% of the variance in the items. All items loaded on the expected factor, each with loadings greater than .40 on that factor and less than .30 on any other factor (see Appendix C).

## Results

Table 1 shows the descriptive statistics and zero-order correlations for the major variables. Overall, these zero-order correlations

<sup>6</sup> The sample size was too small to conduct this analysis using confirmatory factor analysis.

Table 1  
Means, Standard Deviations, and Intercorrelations of Major Variables (N = 234–282)

|                               | M     | SD    | 1     | 2    | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11   | 12    | 13 |
|-------------------------------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----|
| 1. Age                        | 41.12 | 10.19 | —     |      |       |       |       |       |       |       |       |       |      |       |    |
| 2. Tenure                     | 10.73 | 10.15 | .58** | —    |       |       |       |       |       |       |       |       |      |       |    |
| 3. Proactive personality      | 2.24  | 0.90  | .13   | .06  | —     |       |       |       |       |       |       |       |      |       |    |
| 4. Job autonomy               | 1.66  | 0.66  | .03   | .06  | .34** | —     |       |       |       |       |       |       |      |       |    |
| 5. Coworker trust             | 3.84  | 0.72  | .07   | .01  | .18** | .16*  | —     |       |       |       |       |       |      |       |    |
| 6. Supportive supervision     | 3.26  | 0.79  | .25** | .02  | .27** | .22** | .49** | —     |       |       |       |       |      |       |    |
| 7. Role breadth self-efficacy | 2.70  | 1.05  | .07   | .02  | .49** | .42** | .16*  | .17** | —     |       |       |       |      |       |    |
| 8. Control appraisals         | 3.15  | 1.03  | .03   | .06  | .07   | .22** | .27** | .27** | .06   | —     |       |       |      |       |    |
| 9. Change orientation         | 2.85  | 0.72  | .09   | .12  | .17** | .24** | .22** | .29** | .28** | .34** | —     |       |      |       |    |
| 10. Flexible role orientation | 3.28  | 0.80  | .19** | .03  | .29** | .26** | .33** | .24** | .26** | .21** | .27** | —     |      |       |    |
| 11. Proactive work behavior   | 0.00  | 1.64  | -.03  | -.05 | .26** | .38** | .15*  | .13*  | .37** | .15*  | .20** | .33** | —    |       |    |
| 12. Affective commitment      | 3.28  | 0.70  | .22** | .11  | .23** | .16*  | .36** | .32** | .10   | .42** | .23** | .33*  | .13* | —     |    |
| 13. Generalized compliance    | 4.39  | 0.52  | .04   | .07  | .12*  | .09   | .21** | .07   | .13*  | .09   | .06   | .26** | .11  | .22** | —  |

\*  $p < .05$ . \*\*  $p < .01$ .

support the model proposed. However, to test the model, taking into account imperfect scale reliability, and to obtain information on the unique paths between constructs after controlling for other variables, we conducted a series of structural equation models. As age and tenure had relatively low correlations with the major variables, these background variables were not considered to be major confounds and are not included in the structural model.

We tested the hypothesized structural model using the LISREL VIII program (Jöreskog & Sörbom, 1993), with covariances obtained from PRELIS 2. To keep the sample size per estimated parameter to reasonable levels, we fixed various elements of the model. The measurement error in each antecedent variable was fixed to [one minus reliability] multiplied by the variance of the observed measure. Internal consistency reliability estimates were used to estimate reliability. Multiple indices of fit were calculated to assess the models (Kelloway, 1996). A large chi-square value indicates that the model does not adequately fit the data, and a chi-square ratio (i.e., chi-square divided by degrees of freedom) of two or less is taken as a useful guideline for accepting a model. As recommended by Hu and Bentler (1998), when maximum-likelihood methods are used and when there are relatively small sample sizes, we also report the standardized root-mean-square residual (SRMR; Jöreskog & Sörbom, 1981) for which values of less than .05 are desired, and we report the comparative fit index (CFI; Bentler, 1990), for which values of .90 or greater are desired.

The hypothesized model provided a very good fit to the data,  $\chi^2(14, N = 281) = 22.36, p < .01$ , ratio < 2, SRMR = .028, CFI = .98. Nevertheless, following Kelloway's (1996) recommendations for good practice, we compared the hypothesized model against theoretically plausible alternatives (see Table 2). In light of MacCallum, Roznowski, and Necowitz's (1992) warning against excess modifications with small samples, we considered only three alternative models. We first compared the hypothesized fully mediated model with a nonmediated model. This model was a poor fit to the data and was a significantly poorer fit than the hypothesized model. This highlights the importance of the mediating pathways. Second, we compared the hypothesized model with a partially mediated model. This model was a significant improvement in the fit, and the incremental fit statistics for this model were higher than the hypothesized model. Inspection of the specific paths suggested

a significant direct path between job autonomy and proactive work behavior. Finally, we tested a model in which those variables that we included for differential validity purposes played a substantive role in the proactivity process. We did not expect this model to show an improvement over the hypothesized model, and it did not. Moreover, none of the additional paths in this model was significant. In summary, the hypothesized model was improved by allowing a direct path between job autonomy and proactive work behavior, but no other alterations were theoretically sound.<sup>7</sup> The final model was an excellent fit,  $\chi^2(13, N = 281) = 10.53, p < .01$ , ratio < 1, SRMR = .020, CFI = 1.00.

Figure 2 shows the significant pathways for the final model. Providing partial support for Hypothesis 1, role breadth self-efficacy and flexible role orientation had positive links with proactive work behavior ( $\beta = .24, p < .01$ ; and  $\beta = .24, p < .01$ , respectively). Control appraisals and change orientation did not have significant unique associations with proactive work behavior. Supporting Hypothesis 2, job autonomy had a positive and significant zero-order correlation with proactive work behavior ( $r = .38, p < .01$ ). This relationship appears to be mediated by two cognitive-motivational variables. Thus, job autonomy was positively associated with role breadth self-efficacy ( $\beta = .30, p < .01$ ) and flexible role orientation ( $\beta = .16, p < .05$ ), which were both linked to proactive work behavior. There was also a direct effect of job autonomy on proactive work behavior ( $\beta = .27, p < .01$ ). Job autonomy was significantly associated with both control appraisals and change orientation, but neither of these variables had unique associations with proactive work behavior.

In relation to Hypothesis 3, coworker trust had a significant positive zero-order correlation with proactive work behavior ( $r = .15, p < .05$ ). This relationship appeared to be mediated by flexible role orientation. Thus, coworker trust positively linked to flexible role orientation ( $\beta = .31, p < .01$ ), which, in turn, related to

<sup>7</sup> Because the individual-level data are nested within teams, we also checked intraclass correlation coefficient(1) values for the dependent variables, as recommended by Bliese (2000). The values for proactive work behavior and the cognitive-motivational states were sufficiently low to suggest that nonindependence was not an issue in the present data set.

Table 2  
Summary of Models Tested and LISREL Fit statistics

| Model                           | Description  | $\chi^2$ | df | Ratio | SRMR | CFI  | $\Delta \chi^2$ | $\Delta df$ |
|---------------------------------|--|----------|----|-------|------|------|-----------------|-------------|
| Hypothesized fully mediated     | Model with paths from (a) proactive personality to each cognitive-motivational mediator; (b) work environment antecedents to each mediator and to commitment; (c) each cognitive-motivational mediator to proactive work behavior; and (d) both commitment and flexible role orientation to generalized compliance. The distal antecedents were allowed to correlate with each other, as were each of the mediators. | 22.36    | 14 | 1.59  | .028 | .98  | —               | —           |
| Nonmediated                     | Nonmediated model in which pathways between antecedents and mediators were omitted, and instead, the antecedents and mediators all had direct links with both outcomes.  | 205.90** | 25 | 8.24  | .16  | .67  | 183.74**        | 11          |
| Partially mediated              | Hypothesized model plus direct links between the antecedents and the proactive work behavior.  | 10.05    | 10 | 1.00  | .020 | 1.00 | 12.11**         | 4           |
| Discriminant variables included | Hypothesized model plus each of the cognitive-motivational mediators to generalized compliance and affective commitment to proactive work behavior.  | 19.02*   | 10 | 1.90  | .025 | .99  | 3.14            | 4           |
| Final                           | Hypothesized model plus a path from job autonomy to proactive behavior.  | 10.53    | 13 | 0.81  | .020 | 1.00 | 11.69**         | 1           |

Note.  $n = 281$ . SRMR = standardized root-mean-square residual; CFI = comparative fit index. Dashes represent data that were not applicable. \*  $p < .05$ . \*\*  $p < .01$ .

proactive work behavior. Coworker trust was also significantly linked to control appraisals and affective commitment, neither of which related to proactive work behavior.

Contrary to Hypothesis 4, supportive supervision did not play an important role in the proactive process. It did not significantly relate to any of the cognitive-motivational variables that, in turn, related to proactive behavior. Although there was a small zero-order correlation between supportive supervision and proactive work behavior ( $r = .13, p < .05$ ), this is probably attributable to its intercorrelations with other predictors (e.g., job autonomy). Supportive supervision, however, did relate to change orientation ( $\beta = .22, p < .05$ ) and affective commitment ( $\beta = .17, p < .05$ ), with the latter, then, being positively associated with generalized compliance ( $\beta = .19, p < .01$ ).

Finally, in relation to Hypothesis 5, proactive personality positively related to proactive work behavior ( $r = .26, p < .01$ ) via its effect on role breadth self-efficacy ( $\beta = .42, p < .01$ ) and flexible role orientation ( $\beta = .17, p < .01$ ). Of interest, after controlling for other variables, proactive personality had a negative association with control appraisals ( $\beta = -.15, p < .01$ ). However, because control appraisals were not associated with any outcome, this relationship is not so noteworthy.

Overall, with the exception of supportive supervision, each antecedent was important for proactive behavior, albeit via different processes. Proactive personality was positively related to proactive work behavior via both role breadth self-efficacy and flexible role orientation; job autonomy also positively related to proactive behavior via these processes, as well as directly; and coworker trust was positively associated with proactive behavior via flexible role orientation. At the same time, as expected, affective commitment was positively linked with generalized compliance but not with proactive work behavior. Also as expected, flexible role orientation, and none of the other proactive cognitive-motivational states, was associated with generalized compliance.

These latter results support the differential validity of the main findings.

In addition to the tests above, consistent with calls for greater attention to time in organizations (Ancona, Okhuysen, & Perlow, 2001), we conducted some exploratory analyses to investigate whether there were any long-term effects of the antecedents on the cognitive-motivational states. We used a longitudinal subsample of the main sample ( $n = 146$ ) who had also completed a survey 2 years prior to the survey described above (this earlier survey did not include measures of proactive work behavior, so it could not be used to test the whole model). Analyses showed there was a lagged effect of job autonomy on role breadth self-efficacy, with no evidence of the reverse causal pathway (see Appendix D for details<sup>8</sup>).

## Discussion

### Summary and Implications

The present study aimed to enhance our understanding of the antecedents of proactive work behavior. It went beyond previous models of proactivity that have considered only direct effects and showed the importance of cognitive-motivational variables as mediators of the effects of personality and the work environment on proactive behavior. An initial important finding concerned the role of self-efficacy. Thus, there was support for the idea that engaging in proactive behavior involves rational decision making about whether such actions will be successful, with a critical assessment being one's personal capability to engage in a range of relevant activities (role breadth self-efficacy). The importance of self-efficacy in the proactive process is consistent with other research

<sup>8</sup> Full details of these analyses, including longitudinal correlations, are available from Sharon K. Parker upon request.

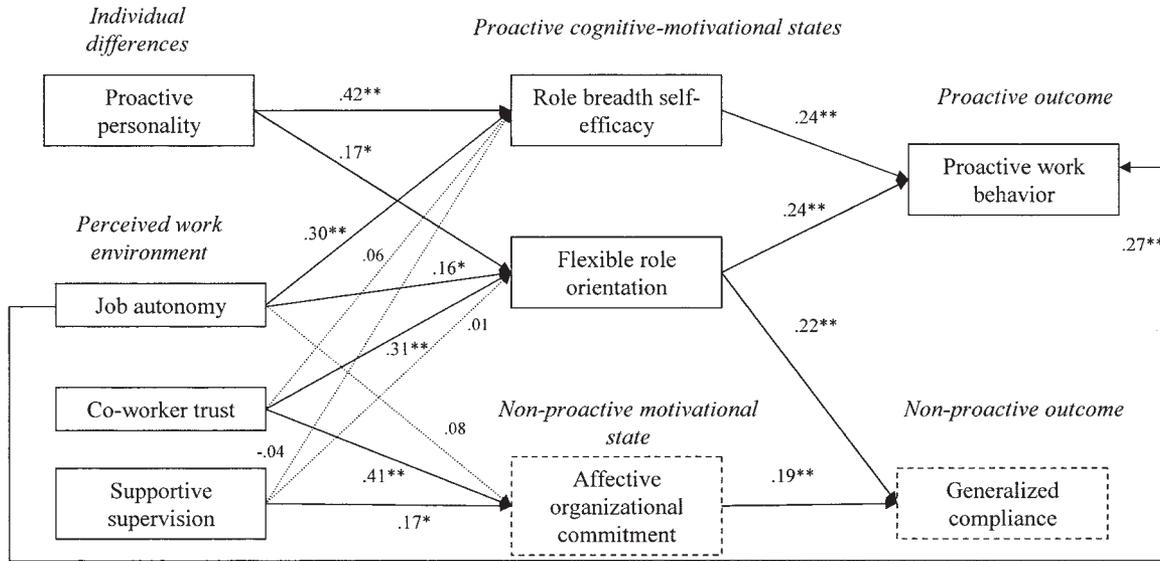


Figure 2. Final model of proactive work behavior. Neither change orientation nor control appraisals significantly predicted proactive work behavior ( $\beta = .01$ ,  $\beta = .04$ , respectively); therefore, pathways involving antecedents and these variables are not shown for the sake of clarity. The pathways were (a) proactive personality to change orientation ( $\beta = .01$ ) and control appraisals ( $\beta = -.15^*$ ), (b) job autonomy to change orientation ( $\beta = .18^*$ ) and (c) control appraisals ( $\beta = .22^{**}$ ), (d) coworker trust to change orientation ( $\beta = .11$ ) and control appraisals ( $\beta = .24^*$ ), and (e) supportive supervision to change orientation ( $\beta = .22^{**}$ ) and control appraisals ( $\beta = .15$ ). Intercorrelations between the set of variables are also not shown. The dotted lines indicate hypothesized paths that were not significant.  $*p < .05$ .  $**p < .01$ .

(Axtell et al., 2000; Griffin et al., in press; Morrison & Phelps, 1999; Speier & Frese, 1997) and reinforces the importance of building employees' perceptions of their own capability.

This study further suggests that individuals who define their role more flexibly, with ownership of longer term goals beyond their job, are more likely to be proactive. Flexible role orientation has a unique main effect in the prediction of proactivity. However, despite its importance here, flexible role orientation and related variables have received little attention in the proactivity literature, and indeed, more broadly. Thus, most motivation research assesses the extent of someone's motivation to carry out their job well, with less consideration about what they define as their "job" in the first place. Yet, the latter may be as important as the former. Researchers have argued that narrow role orientations, such as an "it's not my job" attitude, can impair performance (Karasek & Theorell, 1990; Parker et al., 1997). For example, Klein (1976) observed that Tayloristic job designs can result in people having restricted role orientations in which they are not interested in anything beyond their immediate job, which ultimately stifles innovation. Results of the present study are consistent with Klein's observation. We believe that, to understand active behaviors like proactivity, assessments of motivation need to go beyond the traditional focus on assessing intensity of motivation (i.e., how much effort one is prepared to put in) to also assess the likely direction of that motivated effort, such as would be indicated by one's role orientation.

Practically, our findings suggest that if one wants a proactive workforce, then one should build employees' self-efficacy and promote flexible role orientations. Our study further suggests that

such cognitive-motivational processes might be partly driven by the stable characteristics that individuals bring to a situation (i.e., their proactive personality), but they are also affected by the characteristics of the situation itself. Few studies have simultaneously investigated individual differences and work environment antecedents of proactive work behavior, and this study suggests both play a unique role. The importance of proactive personality is consistent with previous research showing significant links to proactive outcomes (e.g., Crant, 1995; Wanberg & Kammeyer-Mueller, 2000), but the present study adds to this literature because it suggests that proactive personality has its effect via its positive influence on self-efficacy and flexible role orientations.

Job autonomy is identified as a particularly important situational antecedent that relates to proactive behavior in multiple ways, indirectly, via role breadth self-efficacy and flexible role orientation, as well as directly. Of interest, exploratory analyses suggested that job autonomy also has a positive lagged effect on role breadth self-efficacy 2 years later. Interventions such as empowerment may thus have long-term positive consequences that are underestimated in much of the literature because of the predominance of cross-sectional designs or longitudinal studies with relatively short time frames. It also appears that the process by which job autonomy affects self-efficacy is quite a slow one, involving the gradual acquisition and mastery of expanded skills. More broadly, this study adds to accumulating evidence showing that work design affects employee learning and development (Parker, Wall, & Cordery, 2001), which extends traditional work design research that focuses on its consequences for affective states like job satisfaction. Practically, the present study suggests that facilitating

proactivity may require structural changes that devolve authority to the workforce—changes that can be quite difficult to achieve (Parker & Wall, 1998).

Coworker trust was found to be an antecedent of proactive work behavior, albeit having a relatively small effect. Although dimensions of organizational trust have been implicated in innovative behavior (Clegg et al., 2002), the role of collegial trust is less often recognized. Trust in coworkers appears to be important in supporting a flexible role orientation, perhaps because it builds an environment in which individuals are willing to take the risk of “owning” broader goals. In contrast, supportive supervision, even the type of self-leading leadership behaviors previously identified as important for promoting self-direction, was not found to play a unique role in predicting proactivity. One explanation is that the key role of the supervisor may be to enhance individuals’ job autonomy, and encouraging behaviors beyond this may have little effect. Indeed, research examining the relationship between leader–member exchange and performance (Chen & Klimoski, 2003; Liden, Wayne, & Sparrowe, 2000) has shown that employee empowerment, a large part of which reflects job autonomy, mediates the relationship between supervisory behaviors and employee behaviors. Exploratory analyses using the present data support this idea, showing that the effect of supportive supervision on proactive behavior (albeit small) is fully mediated by job autonomy. Manz and Sims (1987) also identified boundary conditions for the effect of self-leading leadership behaviors, such as it being important that the wider culture not undermine these behaviors. It is possible that the present setting did not meet these conditions. Consistent with others’ conclusions, it may also be that supervisors cannot easily promote proactivity because of the “initiative paradox” (Frese & Fay, 2001). Finally, it is possible that we did not assess the most appropriate support from supervisors for resolving this paradox (Campbell, 2000). The present study invites future research to examine these possibilities. As it stands, however, the findings suggest that focusing on supervisory behaviors alone is unlikely to be sufficient for developing a more proactive workforce.

### *Study Limitations and Further Research*

In interpreting the findings, we recognize limitations of our study. First, we used cross-sectional data in the test of the model, thus precluding causal inference. Although lagged relationships between job autonomy and role breadth self-efficacy were shown in additional exploratory analyses, the remaining linkages need to be interpreted more cautiously. Although we grounded our model in existing theory and evidence, it is possible that, for example, having a flexible role orientation leads one to take on more job autonomy. Testing the present model with intervention studies that isolate differences in work antecedents would allow for more definitive causal conclusions.

Second, the data were single-source and self-report. Although self-reports of cognitive-motivational states is quite appropriate, monomethod bias is a methodological threat for the antecedents and outcomes. However, gauging employee proactivity from other sources, such as supervisors or colleagues, has its own disadvantages, including egocentric bias as means of impression management (e.g., supervisors reporting that “of course, their subordinates are proactive”) and observational bias (e.g., employees’ may behave more proactively when they are being observed). A more

specific problem is that, because proactive behavior can involve questioning directions and challenging accepted practices, it is not always welcomed by supervisors or colleagues and can be assessed negatively by them (Frese, Fay, Hilburger, Leng, & Tag, 1997). Our approach was therefore to use self-report measures, albeit with novel steps to overcome their limitations. The proactive behavior measures were designed to be less susceptible to social desirability biases than other self-report scales in this literature (e.g., we assessed employees’ responses to real work scenarios); the measures were validated against rater assessments of proactivity from in-depth interviews; and evidence of the measures’ factorial distinctiveness from other behaviors was provided. Indeed, the context-specific approach to assessing proactive behaviors provides an innovative methodology for future research. More generally, factor analyses showed that key variables were distinct from each other, and other analyses showed that the processes underpinning proactive behavior were distinct from those for generalized compliance. Taken together, the findings suggest that the use of all self-report data is unlikely to threaten the study’s validity.

A third limitation concerns a possible shortcoming with the comparison of the relative importance of the cognitive-motivational states. Cooper and Richardson (1986) suggested that popular theories often prevail—not necessarily because they are correct, but because the theories against which they are compared are often operationalized with measures of lesser fidelity. In the present study, change orientation and control appraisals were assessed with negatively worded items (e.g., “tried and tested ways of doing things are the best”; reverse scored) that possibly tap something different from the intended constructs. These scales were compared against measures of self-efficacy and flexible role orientation, both of which contained positively worded items that directly tapped the focal constructs. Further research might examine whether this item-wording difference explains in part why change orientation and control appraisal had a lower unique influence on proactivity.

A final issue is that the generalizability of this model beyond the shop floor and the domain-specific proactivity criteria remains to be established. Doing so will further strengthen the application of these findings to enhancing workplace proactivity.

### **Conclusion**

It is widely accepted that behaviors such as self-initiating improvements and taking charge to prevent problems are critical in today’s workplaces. Yet, the cognitive-motivational processes that lead to such proactive behaviors, and the drivers of these processes, have had relatively little attention. The present study extended researchers’ understanding by showing that both the situation (job autonomy, coworker trust) and individual differences (proactive personality) uniquely contribute to the prediction of proactive behavior. This suggests two quite different strategies for obtaining a proactive workforce: recruiting individuals with a proactive personality and changing organizational practices to enhance the situation (e.g., work redesign). A second contribution of the present study is that it suggests that these situational and personality variables have a positive influence on proactive behavior because they affect perceptions of capability (role breadth self-efficacy) and because they lead to broader and more flexible role orientations. These cognitive-motivational processes under-

pinning proactive behavior are quite different from those processes typically implicated in the facilitation of more passive types of behavior.

## References

- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, *39*, 1154–1184.
- Ancona, D. G., Okhuysen, G. A., & Perlow, L. A. (2001). Taking time to integrate temporal research. *Academy of Management Review*, *26*, 512–529.
- Ashford, S. J., & Tsui, A. S. (1991). Self-regulation for managerial effectiveness: The role of active feedback seeking. *Academy of Management Journal*, *34*, 251–280.
- Ashton, M. C. (1998). Personality and job performance: The importance of narrow traits. *Journal of Organizational Behavior*, *19*, 289–303.
- Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shop floor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, *73*, 265–285.
- Axtell, C. M., & Parker, S. K. (2003). Promoting role breadth self-efficacy through involvement, work redesign and training. *Human Relations*, *56*, 112–131.
- Baer, M., & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior*, *24*, 45–68.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*, 122–147.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive view*. Englewood Cliffs, NJ: Prentice Hall.
- Barling, J., & Beattie, R. (1983). Self-efficacy beliefs and sales performance. *Journal of Organizational Behavior Management*, *5*, 41–51.
- Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior*, *14*, 103–118.
- Bateman, T. S., & Porath, C. (2003). Transcendent behavior. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 122–137). San Francisco: Berrett-Koehler.
- Becherer, R. C., & Maurer, J. G. (1999). The proactive personality disposition and entrepreneurial behavior among small company presidents. *Journal of Small Business Management*, *38*, 28–36.
- Bentler, P. M. (1990). Latent variable structural models for separating specific from general effects. In L. Sechrest, E. Perrin, & J. Bunker (Eds.), *Research methodology: Strengthening causal interpretations of non-experimental data* (DHHS Publication No. PHS 90–3454). Washington, DC: US Department of Health and Human Services.
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). San Francisco: Jossey-Bass.
- Bycio, P., Hackett, R. D., & Allen, J. S. (1995). Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership. *Journal of Applied Psychology*, *80*, 468–478.
- Campbell, D. J. (2000). The proactive employee: Managing workplace initiative. *Academy of Management Executive*, *14*, 52–66.
- Chen, G., Gully, S. M., Whiteman, J. A., & Kilcullen, R. N. (2000). Examination of relationships among trait-like individual differences, state-like individual differences, and learning performance. *Journal of Applied Psychology*, *85*, 835–847.
- Chen, G., & Klimoski, R. J. (2003). The impact of expectations on newcomer performance in teams as mediated by work characteristics, social exchanges, and empowerment. *Academy of Management Journal*, *46*, 591–607.
- Clegg, C., Unsworth, K., Epitropaki, O., & Parker, G. (2002). Implicating trust in the innovation process. *Journal of Occupational and Organizational Psychology*, *75*, 409–422.
- Cook, J., & Wall, T. D. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology*, *53*, 39–52.
- Cooper, W. H., & Richardson, A. J. (1986). Unfair comparison. *Journal of Applied Psychology*, *71*, 179–184.
- Costigan, R. D., Ilter, S. S., & Berman, J. J. (1998). A multi-dimensional study of trust in organizations. *Journal of Managerial Issues*, *10*, 303–317.
- Crant, J. M. (1995). The Proactive Personality Scale and objective job performance among real estate agents. *Journal of Applied Psychology*, *80*, 532–537.
- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, *26*, 435–462.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.
- Cunningham, C. E., Woodward, C. A., Shannon, H. S., Macintosh, J., Lendrum, B., Rosenbloom, D., & Brown, J. (2002). Readiness for organizational change: A longitudinal study of workplace, psychological, and behavioural correlates. *Journal of Occupational and Organizational Psychology*, *75*, 377–392.
- Dunham, R. B., Grube, J. A., & Castañeda, M. B. (1994). Organizational commitment: The utility of an integrative definition. *Journal of Applied Psychology*, *79*, 370–380.
- Ferres, N., Connell, J., & Travaglione, A. (2004). Co-worker trust as a social catalyst for constructive employee attitudes. *Journal of Managerial Psychology*, *19*, 608–622.
- Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, *23*, 133–187.
- Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology*, *70*, 139–161.
- Frese, M., Garst, H., & Fay, D. (2000). *Control and complexity in work and the development of personal initiative: A four-wave longitudinal structural equation model of occupational socialization*. Manuscript submitted for publication.
- Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal*, *39*, 37–63.
- Frese, M., & Plüddemann, K. (1993). Umstellungsbereitschaft im Osten und Westen Deutschlands: Inflexibilität als Gefahrenzeichen? [Change orientation in East and West Germany: Inflexibility as a sign of danger?] *Zeitschrift für sozialpsychologie*, *24*, 198–210.
- Frese, M., Teng, E., & Wijnen, C. J. D. (1999). Helping to improve suggestion systems: Predictors of making suggestions in companies. *Journal of Organizational Behavior*, *20*, 1139–1155.
- Frohman, A. L. (1997). Igniting organizational change from below: The power of personal initiative. *Organizational Dynamics*, *25*, 39–53.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, *17*, 183–211.
- Gorden, W. I., Infante, D. A., & Graham, E. E. (1988). Corporate conditions conducive to employee voice: A subordinate perspective. *Employee Responsibilities and Rights Journal*, *1*, 101–111.
- Graham, J. W. (1986). Principled organizational dissent: A theoretical essay. *Research in Organizational Behavior*, *8*, 1–52.
- Griffin, M. A., Neal, A., & Parker, S. K. (in press). A new model of work

- role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*.
- Hacker, W. (1985). Activity: A fruitful concept in industrial psychology. In M. Frese & J. Sabini (Eds.), *Goal-directed behavior: The concept of action in psychology* (pp. 262–283). Hillsdale, NJ: Erlbaum.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behaviour and Human Performance*, 16, 250–279.
- Hill, T., Smith, N. D., & Mann, M. F. (1987). Role of efficacy expectations in predicting the decision to use advanced technologies: The case of computers. *Journal of Applied Psychology*, 72, 307–313.
- Howell, J. M., & Boies, K. (2004). Champions of technological innovation: The influence of contextual knowledge, role orientation, idea generation, and idea promotion on champion emergence. *The Leadership Quarterly*, 15, 123–143.
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424–453.
- Ibarra, H. (2003). *Working identity: Unconventional strategies for reinventing your career*. Cambridge, MA: Harvard Business School Press.
- Jackson, P. R., Wall, T. D., Martin, R., & Davids, K. (1993). New measures of job control, cognitive demand and production responsibility. *Journal of Applied Psychology*, 78, 753–762.
- Jöreskog, K. G., & Sörbom, D. (1981). *LISREL V: Analysis of linear structural relationships by the method of maximum likelihood*. Chicago: National Educational Resources.
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL VIII: User's reference and guide*. Mooresville, IN: Scientific Software.
- Kanfer, R. (1992). Work motivation: New directions in theory and research. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 7, pp. 1–54). Chichester, England: Wiley.
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York: Basic Books.
- Kelloway, E. K. (1996). Common practices in structural equation modeling. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 141–180). Chichester, England: Wiley.
- Kickul, J., & Gundry, L. K. (2002). Prospecting for strategic advantage: The proactive entrepreneurial personality and small firm innovation. *Journal of Small Business Management*, 40, 85–97.
- Klein, L. (1976). *New forms of work organisation*. Cambridge, England: Cambridge University Press.
- Latham, G. P., & Saari, L. M. (1984). Do people do what they say? Further studies on the situational interview. *Journal of Applied Psychology*, 69, 569–573.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1987). Comparison of three theoretically derived variables in predicting career and academic behavior: Self-efficacy, interest congruence, and consequence thinking. *Journal of Counseling Psychology*, 34, 293–298.
- Liden, R. C., Wayne, S. J., & Sparrowe, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85, 407–416.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- MacCallum, R. C., Roznowski, M., & Necowitz, L. B. (1992). Model modifications in covariance structure analysis: The problem of capitalization on chance. *Psychological Bulletin*, 111, 490–504.
- Manz, C. C., & Sims, H. P., Jr. (1987). Leading workers to lead themselves: The external leadership of self-managing work teams. *Administrative Science Quarterly*, 32, 106–128.
- McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38, 24–59.
- Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace: Theory, research, and application*. Thousand Oaks, CA: Sage.
- Meyer, J. P., Bobocel, D. R., & Allen, N. J. (1991). Development of organizational commitment during the first year of employment: A longitudinal study of pre- and post-entry influences. *Journal of Management*, 17, 717–733.
- Mitchell, T. R., & Daniels, D. (2003). Motivation. In W. C. Borman & D. R. Ilgen, R. J. Klimoski, & I. B. Weiner (Eds.), *Handbook of psychology, Volume 12: Industrial and organizational psychology* (pp. 225–254). New York: Wiley.
- Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extra-role efforts to initiate workplace change. *Academy of Management Journal*, 42, 403–419.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.
- Organ, D. W., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. *Personnel Psychology*, 48, 775–802.
- Parker, S. K. (1998). Role breadth self-efficacy: Relationship with work enrichment and other organizational practices. *Journal of Applied Psychology*, 83, 835–852.
- Parker, S. K. (2000). From passive to proactive motivation: The importance of flexible role orientations and role breadth self-efficacy. *Applied Psychology: An International Review*, 49, 447–469.
- Parker, S. K., & Sprigg, C. A. (1999). Minimizing strain and maximizing learning: The role of job demands, job control, and proactive personality. *Journal of Applied Psychology*, 84, 925–939.
- Parker, S. K., & Wall, T. D. (1998). *Job and work design: Organizing work to promote well-being and effectiveness*. Thousand Oaks, CA: Sage.
- Parker, S. K., Wall, T. D., & Cordery, J. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology*, 74, 413–440.
- Parker, S. K., Wall, T. D., & Jackson, P. R. (1997). “That’s not my job”: Developing flexible employee work orientations. *Academy of Management Journal*, 40, 899–929.
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26, 513–563.
- Rogers, W. M., Schmitt, N., & Mullins, M. E. (2002). Correction for unreliability of multifactor measures: Comparison of alpha and parallel forms approaches. *Organizational Research Methods*, 5, 194–199.
- Schein, E. H. (1971). Occupational socialization in the professions: The case of role innovation. *Journal of Psychiatric Research*, 8, 521–530.
- Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84, 416–427.
- Seibert, S. E., Kraimer, M. L., & Crant, J. N. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, 54, 845–874.
- Simard, M., & Marchand, A. (1995). A multilevel analysis of organizational factors related to the taking of safety initiatives by work groups. *Safety Science*, 21, 113–129.
- Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology*, 68, 653–663.
- Speier, C., & Frese, M. (1997). Generalized self-efficacy as a mediator and moderator between control and complexity at work and personal initiative: A longitudinal study in East Germany. *Human Performance*, 10, 171–192.
- Staw, B. M., & Boettger, R. D. (1990). Task revision: A neglected form of work performance. *Academy of Management Journal*, 33, 534–559.
- Unsworth, K. L., & Parker, S. K. (2003). Proactivity and innovation:

- Promoting a new workforce for the new workplace. In D. Holman, T. D. Wall, C. W. Clegg, P. Sparrow, & A. Howard (Eds.), *The new workplace: A guide to the human impact of modern working practices* (pp. 175–196). Chichester, England: Wiley.
- Van Dyne, L., & LePine, J. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, *41*, 108–119.
- Viswesvaran, C. (2001). Assessment of individual job performance: A review of the past century and a look ahead. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work and organizational psychology* (Vol. 1, pp. 95–125). Thousand Oaks, CA: Sage.
- Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.
- Wanberg, C. R., & Kammeyer-Mueller, J. D. (2000). Predictors and outcomes of proactivity in the socialization process. *Journal of Applied Psychology*, *85*, 373–385.
- Warr, P. B. (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology*, *63*, 193–210.
- Withey, M. J., & Cooper, W. H. (1989). Predicting exit, voice, loyalty, and neglect. *Administrative Science Quarterly*, *34*, 521–539.
- Wood, R. E., George-Falvy, J., & DeBowski, S. (2001). Motivation and information search on complex tasks. In M. Erez & U. Kleinbeck (Eds.), *Work motivation in the context of a globalizing economy* (pp. 27–48). Hillsdale, NJ: Erlbaum.

## Appendix A

### Coding for Proactive Problem-Solving Measure

The raters were 10 individuals with expertise in organizational behavior/psychology research (doctoral students, postdoctoral researchers, and tenured academics) and 10 managers with extensive management experience. Each rater received a definition of proactivity with specific details about proactive problem solving. Proactive responses to problems were defined as *self-starting* (e.g., dealing with the problem in an unusual or nonstandard way; acting on a problem oneself, without waiting to be directed by a supervisor), and/or *future-oriented and change focused* (e.g., acting on an emergent problem rather than waiting until it cannot be avoided; preventing a problem; changing the situation so that a problem is reduced), and/or *highly persistent* (e.g., overcoming barriers in order to solve a problem). Coders were informed that some responses to problems might be helpful and important for performance yet still not be “proactive,” and indeed be rather passive, such as solving a problem that is likely to reoccur without any attempt to prevent it.

Raters were then given the following information and task: Imagine a wire maker within a manufacturing company. The wire maker’s job is to efficiently operate machines to produce and/or transform wire that is supplied from an internal supplier. The wire maker reports to a team leader, who, in turn, reports to a shift manager. The team leader works hands-on in the team and typically deals with day-to-day operational issues and problems incurred by the team. The shift manager is typically responsible for monitoring the team’s use of resources, quality issues, and other such longer term performance indicators. Fitters (i.e., maintenance engineers) typically diagnose, fix, and maintain equipment and machinery. Everyday problems likely to be experienced by wire makers include: wire tangles, machine breakdowns, shortages of supplies, and poor-quality supplies.

Raters then assessed the proactivity of each response to three problem scenarios from the perspective of a wire operator as well as their confidence in the accuracy of their ratings (see the Method section for details on this procedure).

## Appendix B

### Factor Loadings From Principal-Components Analysis With Orthogonal Rotation

| Behavior   | Component 1:<br>Generalized<br>compliance | Component 2:<br>Proactive<br>work behavior |
|--|---|--|
| Not taking unnecessary time off work                                   | .91                                       |  |
| Trying to be punctual at work  | .90                                       |  |
| Keeping good attendance at work  | .88                                       |  |
| Trying not to take extra breaks  | .63                                       |  |
| Implementing ideas for improvements oneself                            |   | .70  |
| Suggesting ideas for improvements to colleagues                        |   | .68  |
| Suggesting ideas for improvements to manager, supervisor, or others    |   | .63  |
| Trying to figure out why reject levels are increasing                  |   | .62  |
| Making suggestions to relevant people as to why reject levels are high |   | .58  |
| Informing the supplier about the problem                               |   | .55  |
| Trying to sort out the problem so it will not happen again             |   | .40  |
| Trying to find out why the wire/rods are of poor quality               |   | .38  |

*Note.* This solution accounted for 48% of variance in the items.

## Appendix C

## Loadings From Factor Analysis of Items Assessing Antecedents and Cognitive-Motivational States

| Scale and item   | F1  | F2  | F3  | F4  | F5  | F6  | F7  | F8  |
|--|-----|-----|-----|-----|-----|-----|-----|-----|
| Flexible Role Orientation (extent of personal concern vs. "someone else's" concern)  |     |     |     |     |     |     |     |     |
| Some colleagues in your work area were not pulling their weight.   | .78 |     |     |     |     |     |     |     |
| Some essential equipment in your area was not being well maintained.   | .76 |     |     |     |     |     |     |     |
| Different people in your area were not coordinating their efforts.   | .76 |     |     |     |     |     |     |     |
| The way some things were done in your group meant unnecessary work.  | .74 |     |     |     |     |     |     |     |
| Scrap levels in your area were well above average.   | .71 |     |     |     |     |     |     |     |
| The quality of output from your area was not as good as it could be.   | .71 |     |     |     |     |     |     |     |
| Other people in your area were not developing new skills.  | .70 |     |     |     |     |     |     |     |
| Your customers (internal or external) were dissatisfied with what they received.   | .69 |     |     |     |     |     |     |     |
| Your work group was not hitting its production targets.  | .67 |     |     |     |     |     |     |     |
| There were minor safety hazards in your work area.   | .66 |     |     |     |     |     |     |     |
| The level of absence in your work area was increasing.   | .64 |     |     |     |     |     |     |     |
| Costs in your area were higher than budget.  | .62 |     |     |     |     |     |     |     |
| Role Breadth Self-Efficacy (how confident would you feel)  |     |     |     |     |     |     |     |     |
| Presenting information to a group of colleagues.   |     | .82 |     |     |     |     |     |     |
| Helping to set targets in your area.   |     | .82 |     |     |     |     |     |     |
| Designing new procedures for your work area  |     | .79 |     |     |     |     |     |     |
| Contacting people outside the company (e.g., customers) to discuss problems  |     | .78 |     |     |     |     |     |     |
| Analyzing a long-term problem to find a solution   |     | .78 |     |     |     |     |     |     |
| Representing your work area in meetings with senior management   |     | .76 |     |     |     |     |     |     |
| Visiting people from other departments to suggest doing things differently   |     | .61 |     |     |     |     |     |     |
| Job Autonomy (extent that you)   |     |     |     |     |     |     |     |     |
| Help to decide how much work your team will do.  |     |     | .67 |     |     |     |     |     |
| Help to allocate jobs among team members.  |     |     | .66 |     |     |     |     |     |
| Get involved in the selection of new team members.   |     |     | .62 |     |     |     |     |     |
| Arrange cover for people.  |     |     | .61 |     |     |     |     |     |
| Get involved in improvement teams.   |     |     | .60 |     |     |     |     |     |
| Help to monitor your team's overall performance.   |     |     | .59 |     |     |     |     |     |
| Train other people.  |     |     | .48 |     |     |     |     |     |
| Get involved in the discipline of other team members.  |     |     | .47 |     |     |     |     |     |
| Help to manage the budget for your team.   |     |     | .42 |     |     |     |     |     |
| Supportive Supervision (extent that team leader/supervisor. . .)   |     |     |     |     |     |     |     |     |
| Encourages us to expect a lot from ourselves.  |     |     |     | .82 |     |     |     |     |
| Encourages us to set targets for our team performance.   |     |     |     | .79 |     |     |     |     |
| Encourages us to praise each other for doing a good job.   |     |     |     | .76 |     |     |     |     |
| Encourages us to be aware of our level of performance.   |     |     |     | .74 |     |     |     |     |
| Proactive Personality (how true are the following)   |     |     |     |     |     |     |     |     |
| No matter what the odds, if I believe in something, I will make it happen.   |     |     |     |     | .76 |     |     |     |
| I love being a champion for my ideas, even against others' opposition.   |     |     |     |     | .72 |     |     |     |
| I am excellent at identifying opportunities.   |     |     |     |     | .70 |     |     |     |
| If I believe in an idea, no obstacle will prevent me from making it happen.  |     |     |     |     | .66 |     |     |     |
| Change Orientation (what is your opinion on these statements)  |     |     |     |     |     |     |     |     |
| Tried and tested ways of doing things are usually the best.  |     |     |     |     |     | .64 |     |     |
| When an organization is running smoothly, there is no need to think about changing things.                                     |     |     |     |     |     | .60 |     |     |
| The goal of this job is to produce output, not to do things like fill out charts and think about targets.                      |     |     |     |     |     | .58 |     |     |
| In the long run, this job is done more efficiently if people stick to what they already know, rather than learning new things. |     |     |     |     |     | .49 |     |     |
| Too often work practices are changed just for the sake of change.  |     |     |     |     |     | .47 |     |     |
| Control Appraisals (to what extent are these true in your job)   |     |     |     |     |     |     |     |     |
| In my job, most of the problems that I experience are completely "out of my hands."  |     |     |     |     |     |     | .75 |     |
| With many of the problems I experience, it is not worth telling anybody because nothing will change.                           |     |     |     |     |     |     | .71 |     |
| I feel powerless to control the outcomes of the process I work on.   |     |     |     |     |     |     | .67 |     |
| The same problems keep happening again and again, regardless of what I do.   |     |     |     |     |     |     | .63 |     |
| Coworker Trust (to what extent do you agree or disagree)   |     |     |     |     |     |     |     |     |
| There is a great deal of trust among members of my team.   |     |     |     |     |     |     |     | .70 |
| If I got into difficulties at work, I know the other members of my team would try to help me out.                              |     |     |     |     |     |     |     | .63 |
| I have full confidence in the technical skills of other people on my team.   |     |     |     |     |     |     |     | .52 |
| People on my team would get on with their work even if the team leader was not around.   |     |     |     |     |     |     |     | .48 |

Note. Loadings < .30 not shown. F1-F8 = Factor 1-Factor 8.

(Appendixes continue)

## Appendix D

## Analyses and Results of Exploratory Longitudinal Analyses

The longitudinal sample was a subset of the main sample (mean age = 38.14 years,  $SD = 10.06$ ; mean tenure = 9.63 years,  $SD = 9.36$ ). To test the potential lagged effects of work environment antecedents on cognitive-motivational variables, we estimated a structural model with stability paths between the same constructs over time and with paths from Time 1 antecedents (job autonomy, supportive supervision, coworker trust) to Time 2 role breadth self-efficacy and Time 2 flexible role orientation (we focused on these cognitive-motivational states, as they were the only ones that predicted proactive behavior). The structural model included intercorrelations between the Time 1 variables and between the Time 2 variables.

A model with stability paths between the same constructs over time and with paths from each Time 1 antecedent to role breadth self-efficacy and flexible role orientation was a very good fit,  $\chi^2 (14, N = 146) = 12.88$ , ratio  $< 2$ , comparative fit index = 1.00, standardized root-mean-square residual = .041. All of the stability paths were significant and positive, suggesting stability in the variables. The stability paths were as follows: job

autonomy ( $\beta = .66, p < .01$ ); coworker trust ( $\beta = .47, p < .01$ ); supportive supervision ( $\beta = .22, p < .05$ ); role breadth self-efficacy ( $\beta = .60, p < .05$ ); and flexible role orientation ( $\beta = .34, p < .05$ ). Only the lagged effect from autonomy at Time 1 to role breadth self-efficacy at Time 2 ( $\beta = .22, p < .05$ ) was significant (all other lagged paths had beta weights of .10 or less).

We also tested the alternative causal pathways by including additional paths from Time 1 cognitive-motivational states to Time 2 work antecedents. Including these paths did not significantly improve the fit of the model,  $\chi^2 \text{ diff} (8, N = 146) = 2.91$ , and none of the reverse paths had significant beta weights. These analyses support the idea that job autonomy causes self-efficacy rather than the reverse causal direction.

Received July 16, 2004

Revision received May 25, 2005

Accepted June 1, 2005 ■