

Railing for Safety: Job Demands, Job Control, and Safety Citizenship Role Definition

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This study investigated job demands and job control as predictors of safety citizenship role definition, that is, employees' role orientation toward improving workplace safety. Data from a survey of 334 trackside workers were framed in the context of R. A. Karasek's (1979) job demands–control model. High job demands were negatively related to safety citizenship role definition, whereas high job control was positively related to this construct. Safety citizenship role definition of employees with high job control was buffered from the influence of high job demands, unlike that of employees with low job control, for whom high job demands were related to lower levels of the construct. Employees facing both high job demands and low job control were less likely than other employees to view improving safety as part of their role orientation.

Keywords: job demands, job control, safety, role orientations, railways

Employee attitudes toward occupational safety continue to attract considerable research attention (e.g., Cheyne, Oliver, Tomas, & Cox, 2002; Mearns

& Flin, 1995; Zohar, 2000), variously focusing on how employee perceptions of specific objects (e.g., adequacy of safety equipment), events (e.g., supervisory safety-related behaviors), and issues (e.g., importance of managerial commitment to safety) in the organizational environment are related to safety outcomes, such as work-related injuries. In this study, we shift the attitudinal referent from what should be done or what others should be doing to enhance safety in the workplace to what employees perceive as their own responsibilities with respect to improving safety for themselves and their coworkers. More specifically, using Karasek's (1979) job demands–control model and role theory in organizations (e.g., Graen, 1976), we investigate how work characteristics, such as job demands and job control, are related to employees' beliefs about their own safety-specific role responsibilities.

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The research reported on here used data collected while the three authors were affiliated with the Institute of Work Psychology, University of Sheffield, Sheffield, United Kingdom. We presented earlier versions of this study at the 2001 Centenary Conference of the British Psychological Society (BPS) 2001 in Glasgow, Scotland; the 2004 Occupational Psychology Conference of the British Psychological Society in Stratford, England; the 2005 European Congress of Work and Organizational Psychology, Istanbul, Turkey; and the 2005 Public Forum of the Association of Workers' Compensation Boards of Canada, Vancouver, Canada.

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We conducted research with trackside employees of five railway maintenance companies in the United Kingdom at a time when the national railway network was under considerable scrutiny for its performance as a largely privatized transport system (see, e.g., Hale, 2000; Hutter, 2001; Murray, 2001; O'Brien & Loach, 2000). This provided an intriguing context in which to study the relationship between work design and role orientations regarding workplace safety for two reasons. First, in the wake of several tragic rail accidents that public inquiries variously attributed to faulty signal maintenance, broken

tracks, and heavy network usage, pressure was exerted on contract railway maintenance companies to repair the weakening infrastructure as quickly as possible. Employees working trackside for these companies seemed to bear the brunt of these pressures in terms of increased demands. According to one veteran signal worker whom we interviewed as a part of our fieldwork, "covering a wide area on shifts, I am frequently required to work with one other member of staff instead of two. This seriously affects our ability both to work within the safety procedures and to get the job done. This also puts a lot of pressure on staff to work without lookouts [to watch for oncoming trains that could endanger staff]. Staffing levels are not adequate and result in poor morale because the company expects the same output." This quotation not only illustrates increased demands faced at trackside as a result of understaffing but also the tenuous position of safety in what this worker considers to be his job responsibilities.

The second reason this context provides a relevant setting for this research is the decentralized nature of the work. Railway maintenance workers typically work in small, transitory gangs, frequently at nights and on weekends, when network traffic is lower, and although they report to a regional supervisor, they move around the region as required. The design of the work necessitates, on one hand, demands imposed by centralized supervisors (e.g., pressure to fix certain parts of the track by a certain time) and, on the other hand, the need to make operational decisions about work tasks and methods at the worksite. When asked what could be done to improve the day-to-day situation of trackside maintenance work, a railway worker we interviewed who had worked under both public- and private-run railway networks stated, "Ask people who actually work on the railway for their ideas on how to do things, instead of people who never had experience working on the railway saying how things should be done."

Grounded in observations such as these, we set out to conduct a survey study of the relationship between work design and role orientations toward workplace safety. We proposed that trackside employees facing heavy demands, and with little autonomy to manage these demands, would not perceive behaviors aimed at improving workplace safety as part of their role, but instead as literally out of their control in the face of heavy demands. In contrast, we suspected that with the autonomy to handle these demands, employees would perceive improving safety as more achievable and thus might cognitively frame safety improvement as a fundamental part of their role

responsibilities. To explore these questions, we first describe what is meant by safety citizenship role definition and then examine the relationship between job demands and job control in the context of Karasek's (1979) model.

Theoretical Background and Hypotheses

Safety Citizenship Role Definition

Graen (1976) argued that individuals develop a sense of their role in an organization on the basis of what they think they are supposed to do, what they prefer to do, and what they know how to do. Employees' role definition is subject to continual reassessment on the basis of perceptions generated from various social cues such that people holding the same job may in fact define their role responsibilities quite differently (Salancik & Pfeffer, 1978). The motivation to perform tasks that employees consider an important part of their role (in-role) or beyond their role (extra-role) also appears to be different, with more favorable attitudes toward work performance stemming from greater discretion, lack of situational constraints, and the type of employment relationship that the incumbent perceives (Morrison, 1994). This is consistent with research investigating predictors of employee role orientations (e.g., Parker, Wall, & Jackson, 1997), or the degree to which employees cognitively construct their work roles so as to include a broader and more flexible range of work activities. Hofmann, Morgeson, and Gerras (2003) extended the concept of role orientation to the occupational safety domain. They investigated the degree to which high-quality relationships between leaders and subordinates prompted employees to broaden their roles beyond job descriptions to engage in citizenship behaviors related to workplace safety, which they termed *safety citizenship role definition*. Results of the study illustrated that subordinates' perceived obligations to a leader within an environment valuing safety encouraged this discretionary safety-specific role expansion, which in turn was positively associated with performance of safety citizenship behavior.

Job Demands–Control Model

The job demands–control model (Karasek, 1979; Karasek & Theorell, 1990) proposed two main ways in which job control (i.e., individual autonomy over work timing and methods) and job demands (i.e., pace and pressure of work tasks) influenced mental health. First, the *strain hypothesis* proposes that high-

strain jobs (i.e., high job demands and low job control) lead to greater strain than low-strain jobs (i.e., low job demands and high job control). The idea here is that without the latitude to manage demands, work pressures take their toll on employee well-being. A second theory, the *active learning hypothesis*, suggests that in contrast to jobs with low demands and low control (passive jobs), jobs with high demands and high control (active jobs) are challenging and intrinsically motivating and afford the opportunity to learn new skills to meet these challenges, which consequently result in reduced strain.

Recent reviews (e.g., van der Doef & Maes, 1999; de Lange, Taris, Kompier, Houtman, & Bongers, 2003) of cross-sectional and longitudinal studies examining the job demands–control model and its extensions have found moderate support for the strain hypothesis. De Lange et al. (2003) proposed that evidence of the strain hypothesis requires effects for job demands and job control but that these effects could be additive or interactive. To date, more of the research appears to support the additive than the interactive relationship.

Research on the active learning hypothesis (e.g., Holman & Wall, 2002) and outcomes other than strain is comparatively scarce. Recent longitudinal evidence from Taris, Kompier, de Lange, Schaufeli, and Schreurs (2003) suggests a beneficial effect of high job control on learning motivation and personal accomplishment but also a detrimental effect of high job demands on these learning orientations. When considering changes between job types, a transition from a low- to a high-strain job was accompanied by a strong decrease in learning outcomes, in line with the strain hypothesis.

With the job demands–control model as background, we propose in this study that job demands will be negatively related to employee role orientations toward workplace safety, that job control will be positively related to employee role orientations toward workplace safety, and that an interaction between job demands and job control serves to explain additional variance in safety citizenship role definition. Consideration of several streams of research help to articulate the proposed model more clearly.

Job Demands and Safety Citizenship Role Definition

We propose that employees experiencing high job demands will be less likely to define their roles broadly to include safety improvement activities. In

the face of changing work organization, strained economic conditions, and increased workload, we argue that employees may be unclear about what tasks their organizations value (Rooney, 1992). Increasing job demands are likely to mean that an employee's resources are stretched and thus allocated to priority tasks (e.g., Kahneman, 1973). Under these conditions, employees may well focus only on core tasks that they feel are necessary to get the job done, with the potential, in the case of safety, for narrowing their role orientation to exclude responsibilities perceived as extra-role. Indeed, when controlling for job control over the study period in their longitudinal investigation of a glass manufacturing plant, Axtell and Parker (2003) illustrated that job enlargement was negatively related to employees' motivation to perform a wider range of work tasks. The authors argued that work intensification resulted from the work redesign in the study organization, not unlike the increased demands characterizing the current study's context. With respect to workplace safety, Paoli and Merllié (2001) presented figures from a European Union survey of work environment showing that employees who reported conditions of greater work intensity (i.e., working at very high speed, to tight deadlines, and with less time to do the job) also reported more absences resulting from accidents at work. Our prediction is stated more specifically, as follows:

Hypothesis 1: Employees experiencing high job demands will be less likely than employees experiencing low job demands to define their roles broadly to include safety improvement activities (i.e., safety citizenship role definition).

Job Control and Safety Citizenship Role Definition

We argue that employees experiencing high job control will be more likely to define their roles broadly to include safety improvement activities. Parker and colleagues (e.g., Parker et al., 1997; Parker & Sprigg, 1999) illustrated how employees vary on the degree to which they feel responsible for tasks (such as safety improvement) that may fall outside a strictly defined job description. Employees with highly autonomous jobs reported having broader, more flexible role orientations and greater ownership over production tasks. That is, employees exercised the opportunity afforded by job control to define their roles more extensively than in terms of narrowly defined job tasks. A number of other researchers (e.g., Katz, 1964; Morrison, 1994; Tepper,

Lockhart, & Hoobler, 2001; Zellars, Tepper, & Duffy, 2002) have argued that employees' motivation to perform organizational citizenship behaviors (e.g., helping others, speaking out) is related to the degree to which they consider such behaviors as part of their job, as opposed to an extra-role behavior. In Morrison and Phelps's (1999) study, employees reporting greater felt responsibility had a greater propensity to take personal initiative on the job. The reasoning here is that the motivation to perform tasks that are considered in-role is greater than the motivation for those that are considered beyond the job. Combining the important nature of work-based opportunity and the discretionary nature of role definition expansion, we propose the following hypothesis with respect to perceived safety responsibilities:

Hypothesis 2: Employees experiencing high job control will be more likely than employees facing low job demands to define their roles broadly to include safety improvement activities (i.e., safety citizenship role definition).

Job Demands–Control Interaction

Bringing Karasek's (1979) job demands–control model again to the fore, we recognize the potential for co-occurring effects of job demands and job control on employee role orientations. On one hand, without the resources afforded by job control, employees could perceive high job demands as constraining and thus narrow their role definition to include only necessary tasks. Consistent with a strain-like hypothesis, this would suggest that in the case of employees who have high job demands and low job control, the inclination to consider safety improvement activities as in-role will be less than under conditions of high job demands with high job control. On the other hand, employees facing high levels of both job demands and job control may use the opportunity provided by job control to manage job demands more effectively, safeguarding against a narrowing role orientation and possibly even bolstering their inclination to consider safety improvement activities as in-role, consistent with an active learning hypothesis. With two theories competing to underpin the direction of an interaction in this study, our research proposition is necessarily exploratory insofar as both a strain-type hypothesis (i.e., high job demands/low job control conditions are related to lower safety citizenship role definition) and an active learning type hypothesis (i.e., high job demands/high job

control conditions are related to heightened safety citizenship role definition) are plausible explanations:

Hypothesis 3: The interactive effect of job demands and job control will explain additional variance in safety citizenship role definition, over and above the additive effects of job demands and job control.

Method

Research Design and Sample

We distributed 1,500 questionnaires to railway workers employed by five organizations responsible for United Kingdom railway maintenance. Participation was voluntary, respondents were assured of the anonymity of their responses, and participants were permitted to complete questionnaires during work time. Twenty-two percent ($N = 334$) provided usable data on all study variables. All but two respondents were male, average age was 40.70 years ($SD = 10.17$ years; range = 18 to 61 years), and average organizational tenure was 7.29 years ($SD = 7.48$; range = 1 month to 43 years). Respondents worked in one of five trackside job types: permanent way (48%), signaling (22%), renewals (13%), overhead lines (9%), and other (8%).

Measures

Safety citizenship role definition. The dependent variable in this study consisted of the 27 Likert-type items from Hofmann et al.'s (2003) safety citizenship role definition scale, adapted from previous work on organizational citizenship behavior (e.g., Morrison & Phelps, 1999; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Van Dyne, Cummings, & McLean-Parks, 1995). Sample items include "Helping others to make sure they perform their work safely," "Trying to prevent other members of my work group from being injured on the job," "Getting involved in safety activities to help people in my work group work more safely," "Expressing opinions on safety matters even if others disagree," and "Making suggestions to improve the safety of work." Participants are asked to rate the degree to which each behavior is an expected part of their jobs on a scale ranging from 1 (*expected part of my job*) to 5 (*definitely above and beyond what is expected for my job*). We reverse-scored the items for analyses such that higher scores reflected a greater propensity to consider safety citizenship as part of one's job responsibilities. Although Hofmann et al. (2003, p. 172) conceptualized safety citizenship role definition as multidimensional (i.e., comprising the factors Helping, Voice, Stewardship, Whistleblowing, Civic Virtue, and Initiating Safety-Related Change), they combined the highly correlated subscales into one measure. Using the data from the current sample, we conducted a set of factor analyses, which indicated that a nine-item subset of these items clearly factored together (Cronbach's $\alpha = .91$). We present more detail on these factor analyses in the Results section.

Job demands. We assessed job demands using five items from Caplan, Cobb, French, Harrison, and Pinneau's

(1975) quantitative workload measure. Participants responded to items on a 5-point scale ranging from 1 (*rarely or never*) to 5 (*constantly*); two sample items are "To what extent do you find work piles up faster than you can complete it?" and "To what extent do you spend more time doing basic tasks that prevent you from completing more important ones?" Cronbach's alpha was .87.

Job control. We assessed job control by using the seven highest loading items of the highly correlated timing and method control scales developed by Jackson, Wall, Martin, and Davids (1993). Sample items include "Do you decide on the order in which you do things?" and "Can you vary how you do your work?" Respondents are asked to indicate the extent to which they have control over these aspects of their job on a 5-point scale ranging from 1 (*not at all*) to 5 (*a great deal*). We averaged the items to create a scale score with internal reliability of .92.

Biographical information. Respondents indicated their age, job tenure (in years), job title (technician, senior technician, supervisor), highest railway safety qualification achieved (ranging from basic training to safety supervision responsibilities), and job type (permanent way, signaling, renewals, overhead lines, and other).

Results

Dimensionality of Safety Citizenship Role Definition

Hofmann et al. (2003) conceptualized their safety citizenship role definition scale as comprising six related factors (Helping, Voice, Stewardship, Whistleblowing, Civic Virtue, and Initiating Safety-

Related Change) yet operationalized these as a single factor on account of high interfactor correlations. We initially tested the fit of both of these measurement models with the current data. Fit indices for the two models suggested that neither model provided a good fit to the data (i.e., goodness-of-fit index, comparative fit index, and normed fit index values ranged between .62 and .79, with root mean squared error of approximation $<.11$), with the six-factor oblique model providing a better fit, $\Delta\chi^2(15, N = 227) = 170.1, p < .01$, than the single-factor model. In the absence of a well-fitting measurement model, however, the most that can be concluded from these results is that the hypothesized six-factor model provided a better fit than did the one-dimensional model.

Without evidence of the hypothesized dimensionality, we then assessed the dimensionality of the safety citizenship role definition items with an exploratory factor analysis using maximum likelihood estimation and oblique rotation (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Inspection of the eigenvalues showed one clear factor, with an eigenvalue of 11.31, explaining 40% of the variance and four other factors, each with eigenvalues no larger than 2.09, accounting for total additional variance of 20%. We combined and averaged the scores on the nine items (see Table 1) that loaded clearly on the dominant factor (yet spanned Hofmann et al.'s, 2003,

Table 1
Exploratory Factor Analysis of Safety Citizenship Role Definition Items

Item	Loading	Original subscale ^a
1. Trying to prevent other members of my work group from being injured on the job.	.79	Stewardship
2. Helping others to make sure they perform their work safely.	.75	Helping
3. Taking action to protect other members of my work group from risky situations.	.74	Stewardship
4. Telling other members of my work group to follow safe working procedures.	.68	Whistleblowing
5. Doing something to stop safety violations to protect the well-being of other people in the work group.	.66	Stewardship
6. Getting involved in safety activities to help people in my work group work more safely.	.59	Helping
7. Keeping informed of changes in safety policies and procedures.	.55	Voice
8. Expressing opinions on safety matters even if others disagree	.54	Civic Virtue
9. Making suggestions to improve the safety of a job.	.45	Initiating Safety-Related Change
Eigenvalue	11.31	
Variance explained	40%	

^a Classifications are based on Hofmann, Morgeson, and Gerras's (2003) conceptualization.

original six dimensions) to form the dependent variable in this study.

Common Method Variance

As all the data in this study were derived from self-report, the potential for mono-method variance existed. We conducted two tests to assess the extent of method variance affecting the results. First, a Harmon one-factor test (Podsakoff & Organ, 1986) conducted with items making up the three focal study variables (i.e., job demands, job control, safety citizenship role definition) revealed three factors, suggesting that mono-method variance was not an expected contaminant of the structural results. Second, as recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we compared the fit of a four-factor measurement model (i.e., a latent variable for each of the three focal study variables plus a fourth latent variable for unmeasured method variance, with all the items as indicators), a three-factor measurement model containing latent variables for the three focal study variables, and a null model. Although the method factor did improve measurement model fit, it accounted for only 14% of the total variance, much smaller than the average amount of method variance (25%) observed by Williams, Cote, and Buckley (1989) in their review of the effects of method variance in the applied psychology literature. Thus, although common method variance existed in this study, the results suggest that method artifact was small.

Hypotheses Tests

Table 2 presents the means, standard deviations, and correlations among the study variables. The re-

sults of the hierarchical moderated regression for safety citizenship role definition appear in Table 3. The hypothesized main effects for job demands ($\beta = -.18, p < .01$) and for job control ($\beta = .17, p < .05$) were significant, supporting Hypotheses 1 and 2.

Consistent with procedures outlined by Aiken and West (1991), we included an interaction term, which explained a statistically significant proportion of the variance in safety citizenship role definition ($R^2 = .03, p < .01$). Inspection of the interaction term indicated that job control moderated the relation between job demands and safety citizenship role definition ($\beta = .16, p < .01$). Splitting the sample at the job control median to explore the nature of the interaction (see Figure 1), we found that the relationship between job demands and safety citizenship role definition was stronger for employees with low job control ($\beta = .40, p < .05$) than it was for employees with high job control ($\beta = .26, ns$). This result supports Hypothesis 3 and highlights the detrimental effects of low job control on the relationship between high job demands and safety citizenship role definition (strain hypothesis), rather than the augmentation effect of high demands and high control on safety citizenship role definition (active learning hypothesis).

Discussion

Summary and Theoretical Implications

The research reported in this article examined the relationship between job demands and job control on the degree to which employees consider safety citizenship part of their role definition. First, we found that employees who perceived higher job demands were less likely to consider safety as part of their role.

Table 2
Descriptive Statistics and Correlations Among Study Variables

Variable	M	SD	1	2	3	4	5	6	7
1. Age	40.70	10.17	—						
2. Job tenure	7.29	7.48	.40**	—					
3. Safety qualifications	3.16	1.24	.13*	-.08	—				
4. Job title	0.25	0.80	-.15**	.00	-.21**	—			
5. Job demands	2.69	1.04	.24**	.15**	.14**	-.06	—		
6. Job control	2.92	1.16	.12*	-.18**	.41**	-.15**	-.09	—	
7. SCRD	4.47	0.79	.14*	-.01	.21**	-.10	-.10	.21**	—

Note. $N = 334$. SCRD = safety citizenship role definition. Dummy variables for job types do not appear in this table for ease of presentation.

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

Table 3
Results of Hierarchical Regression Analysis

Independent variables	Dependent variable: Safety citizenship role definition	
	β	t (289)
Step 1		
Age	.14	2.07*
Job tenure	-.02	0.29
Highest safety qualification	.21	3.46**
Supervisory position	-.02	-0.43
Job type (Permanent-way)	-.03	0.16
Job type (Overhead lines)	.02	0.17
Job type (Signaling)	.05	0.27
Job type (Renewals)	-.05	-0.31
Job type (Other)	.04	0.39
ΔR^2	.09**	
Step 2		
Job demands	-.18	-2.80**
Job control	.17	2.33*
ΔR^2	.04**	
Step 3		
Job Demands \times Job Control	.16	2.72**
ΔR^2	.03**	
Adjusted R^2	.11**	
F (12, 255)	3.68**	

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

Second, employees with high perceived job control were more likely than employees with low perceived job control to consider safety as part of their role. However, job demands and job control were shown to be more complex predictors than main effects alone. As predicted, levels of job demands and job control interacted to predict additional variance in safety citizenship role definition. Employees in high-strain jobs (i.e., high job demands and low job control) reported lower safety citizenship role definition than those in either low-strain (i.e., low job demands/high job control), passive (i.e., low job demands/low job control), or active jobs (i.e., high job demands/high job control). This finding is consistent with Karasek's (1979) strain hypothesis, which predicted an increase in employee strain as a result of high job demands and low job control. This study produced no evidence of an active learning approach (i.e., high job demands coupled with high job control augmenting employees' role orientations toward safety), contrary to predictions of the Karasek theory (Karasek, 1979; Karasek & Theorell, 1990)

Overall, the current findings contribute to our understanding of the predictors of a proactive orientation toward safety and extend research on role orientations

(e.g., Parker et al., 1997) and organizational citizenship (e.g., Morrison, 1994) to include workplace safety. To our knowledge, the current study is the first to examine workplace safety specifically in the context of the job demands-control model. Although there is growing evidence of how work characteristics and role stress can influence safety attitudes, behaviors, and outcomes (e.g., Frone, 1998; Probst, 2004; Barlow & Iverson, 2005), the existing focus has largely been on their main effects rather than on the way in which co-occurring work characteristics can interact to produce differential effects. Grounding the current study in the Karasek (1979) model provides one theoretical rationale for these synergies. Taken together, the current findings and the prospects for future research serve to complement growing interest in occupational health research of the effects that work design can have in promoting workplace safety (National Institute for Occupational Safety and Health, 2002).

Limitations and Future Research

The conclusions from this research need to be interpreted in light of several study limitations. In noting these limitations, we suggest directions for future research. First, the cross-sectional sample precludes inferences about the direction of the effects; longitudinal research designs that measure all study variables at more than one time point would be informative here.

A second limitation concerns the limited test of the Karasek (1979) model and its extensions (Karasek & Theorell, 1990). In the current study, we investigated job demands and job control at the individual level of analysis. A useful direction for future research in this area would be to explore the social support component of the job demands-control model with respect to safety. For example, what effect do job demands and job control have on role definitions in work units with supportive safety climates (e.g., learning from safety-related events like near misses vs. hiding these events to

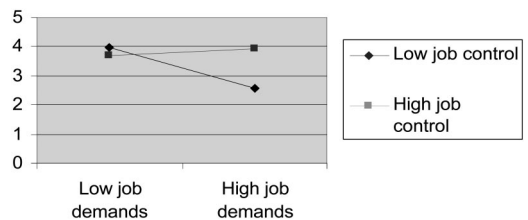


Figure 1. Job demands and job control as predictors of safety citizenship role definition.

benefit from safety incentive pay)?¹ Further study in this direction could extend our understanding of safety attitudes in group settings (cf. Hofmann & Stetzer, 1996; Zohar, 2000) and more specifically capture the dynamics of social support in disseminating and constraining safety attitudes and behaviors.

A third limitation pertains to the fact that all of the study data were derived from survey respondents, leaving our findings open to possible contamination from common method variance, specifically inflation from the social desirability of reporting safety activities as part of in-role responsibilities. Two features suggest that the contamination is minimal, however. First, our analyses to detect effects of common method variance suggested that, although present, it does not appear large in comparison with the total variance explained in the model or the threat it pervades in many applied psychology studies (Williams et al., 1989). Second, the presence of a significant two-way interaction further reduces the weight of this threat in favor of a relationship between the study variables rather than a method artifact (Podsakoff & Organ, 1986; Wall, Jackson, Mullarkey, & Parker, 1996). However, future research should include alternative designs with multisource data where possible to further mitigate these concerns.

A final limitation is that we need to be cautious about the generalizability of the model in light of the low response rate and, thus, the possibility of selective sampling. Although the current research sampled five of the seven infrastructure maintenance companies servicing the national railway network at the time of study (Health and Safety Commission, 2002), the Health and Safety Commission acknowledged that "it is difficult to give an exact figure for the number of people working for contractors in railway infrastructure maintenance" (p. 8). This situation recognizes that the population and organization of railway maintenance work is much more contingent and transient than the office-bound populations (e.g., white-collar employees) often used to create benchmarks (e.g., Baruch, 1999) for response rates in behavioral science research. Whereas asking respondents about their safety citizenship role definition remains an issue because of its social desirability, the risk of a substantial bias in the results (i.e., effect sizes) of self-report surveys such as the ones used here due to nonresponse remains minimal (Schalm & Kelloway, 2001).

Applied Implications and Conclusion

Notwithstanding the limitations described here, the current findings have implications for practice. The

findings imply that one reason safety improvement programs in organizations have had limited success may, in part, be due to narrowing employee orientations toward these activities. Too often, blame for lack of employee involvement in workplace safety is attributed to an apathetic workforce as opposed to the restrictive work situations in which employee role orientations are constructed and over which management has significant influence (e.g., changing work design) to remedy and improve. This study suggests that, controlling for job position and formal safety qualifications, high job demands in the absence of high job control are associated with employees being less actively engaged with improving workplace safety. Attention to these factors in the workplace can provide opportunities to enhance employees' safety citizenship role definition.

¹ We thank an anonymous reviewer for this suggestion.

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