

## Close monitoring as a contextual stimulator: How need for structure affects the relation between close monitoring and work outcomes

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In this article, we argue and demonstrate that employees' Personal Need for Structure (PNS) moderates the negative effects of close monitoring on job satisfaction, intrinsic work motivation, and innovative job performance (as rated by their supervisors). In a field study ( $N = 295$ ), we found that employees low in PNS reacted unfavourably to close monitoring, whereas employees high in PNS reacted more favourably to close monitoring. Furthermore, we demonstrate that the negative effect of close monitoring on job satisfaction and intrinsic work motivation among low PNS employees can be explained by a reduction of perceived autonomy. In contrast, the positive effects of close monitoring on these favourable outcomes among high PNS employees were associated with increased role clarity.

**Keywords:** Autonomy; Close monitoring; Innovative job performance; Intrinsic motivation; Job satisfaction; Need for structure; Role clarity.

External control is generally considered to be a liability for employee motivation and performance, because it violates employees' need to control their (working) life (e.g., Deci & Ryan, 1985). The other side of the coin is that controlling practices leave little room for ambiguity, and hence could increase structure and clarity. Thus, the effects of controlling supervisory behaviours on employee motivation and performance may depend on personal characteristics of that employee, such as his or her Personal Need for Structure (Neuberg & Newsom, 1993; Thompson, Naccarato, Parker, & Moskowitz, 2001).

In this article, we address a specific form of controlling supervisory behaviour: close monitoring (e.g., George & Zhou, 2001). We argue that close monitoring negatively affects job satisfaction, intrinsic work motivation, and innovative job performance for employees with a low need for structure, because it decreases autonomy and causes people to feel controlled. In contrast, employees with a high need for structure are not likely to respond as negatively to external control or lower autonomy

(Slijkhuis, Rietzschel, & Van Yperen, in press). Rather, these employees will attach more weight to the clarity-enhancing aspects of close monitoring, and will therefore be more satisfied, be more motivated, and perform more innovatively when feeling closely monitored.

### PERFORMANCE MONITORING AND MOTIVATION

In many organizations, employees are monitored in some way. Sometimes, this monitoring is explicitly institutionalized. In Electronic Performance Monitoring systems, for example, employees are automatically and continuously monitored, and their performance is compared with a desired standard (e.g., Lund, 1992). However, more often monitoring takes place through supervisory behaviour. Some supervisors tend to continuously keep track of (and respond to) their subordinates' work behaviours, with the aim of ensuring sufficient levels of perfor-

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mance. George and Zhou (2001; also see Zhou, 2003) refer to this as close monitoring, stating that these supervisors “keep close tabs on their subordinates to ensure that they do what they are told, perform tasks in expected ways, and do not do things that the supervisor might disapprove of” (p. 515).

Elaborate monitoring practices can have clear benefits for the organization (such as increased employee productivity; Larson & Callahan, 1990), but research suggests that the costs can be high. For example, several studies have shown that monitoring practices, such as electronic performance monitoring, often increase job strain and diminish work motivation (Bates & Holton, 1995; Carayon, 1993; Lu, 2005; Smith, Carayon, Sanders, Lim, & LeGrande, 1992; Stanton, 2000). Further, this detrimental effect appears to be at least partly due to the controlling nature of monitoring practices (e.g., Lu, 2005; Varca, 2006). In general, supervisory behaviours and other contextual factors that are perceived as *controlling* are likely to have a negative effect on employees’ job satisfaction, work motivation, and performance, because they reduce autonomy and hence diminish employees’ sense of self-determination (e.g., Koestner, Ryan, Bernieri, & Holt, 1984; Pittman, Davey, Alafat, Wetherill, & Kramer, 1980; Ryan, 1982; Shalley & Perry-Smith, 2001).

However, although the existing research clearly points towards the risks of performance monitoring and supervisory close monitoring, research also suggests that these risks may be contingent upon other factors, like the perceived function of the monitoring, or the characteristics of the employee being supervised. For example, Wells, Moorman, and Werner (2007) found that the effects of performance monitoring on employee satisfaction and commitment were more favourable when the purpose of monitoring was perceived as developmental, rather than deterrent. Studying supervisory behaviours, George and Zhou (2001) found that the effects of close monitoring on employee creativity were moderated by employee conscientiousness, and Zhou (2003) found that both the presence of creative coworkers and creative personality moderated the effects of supervisory close monitoring. This suggests that there is another side to close monitoring; even though it generally seems to detract from perceived autonomy, this does not necessarily lead to unfavourable outcomes.

### INFORMATIONAL CONSEQUENCES OF MONITORING

A possible explanation lies in the fact that monitoring can serve an important *informational* function, not only for the supervisor or the organization, but for

the monitored employee as well. For example, Larson and Callahan (1990) argued that supervisory monitoring behaviours may signal to the employee that specific aspects of task performance are particularly important. Indeed, they found that performance monitoring increased participants’ productivity, and that this effect was mediated by perceptions of task importance. Thus, an important positive consequence of supervisory close monitoring may be that it enhances employees’ *role clarity*. Role clarity, or the degree to which employees feel that they know what exactly is required of them, is an important predictor of employee well-being and performance (e.g., Abramis, 1994; Bliese & Castro, 2000; also see Chen & Bliese, 2002).

Close monitoring may therefore exert different and opposing effects on employee job satisfaction, work motivation, and job performance. On the one hand, it diminishes perceived autonomy; on the other hand, it might increase role clarity. Which of these two consequences of close monitoring is most salient, might depend on personal characteristics of the employee. We argue that, in this context, the employee’s Personal Need for Structure is particularly important.

### PERSONAL NEED FOR STRUCTURE

Personal Need for Structure (PNS) is an individual’s chronic need for structure and clarity, associated with an aversion towards ambiguity and a tendency to make sense of one’s environment through cognitive structuring (Thompson et al., 2001). Research has shown, for example, that people high in PNS are more likely to use stereotypes and less likely to use complex representations in categorizations of stimuli than people low in PNS (Neuberg & Newsom, 1993). They also use more spontaneous trait inferences in the categorization of behaviour (Moskowitz, 1993), are more likely to freeze on the first available explanation, more confident in decisions, and less likely to search for alternative explanations (Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994).

Several studies suggest that PNS has important implications for the way employees react to supervisory behaviours. For example, PNS is positively related to right-wing authoritarianism (Jugert, Cohrs, & Duckit, 2009; Thompson et al., 2001). In other words, high PNS individuals are more likely to be submissive to authority, to adhere to conventional norms, and to respond negatively to norm deviants. Also, individuals high in PNS have been found to fulfil (study) obligations sooner than individuals low in PNS (Neuberg & Newsom, 1993; Roman, Moskowitz, Stein, & Eisenberg, 1995). Since supervisory close monitoring generally reflects a strong emphasis

on compliance to rules and obligations, a similarity-attraction perspective (Keller, 1999) suggests that employees high in PNS are more likely to have favourable attitudes towards such supervisory behaviours. Ashford and Cummings (1985) further found that individuals who were low in tolerance for ambiguity (a construct that is related to PNS; Thompson et al., 2001) sought feedback more frequently than individuals who scored high on this factor. More direct evidence comes from a study by Ehrhart and Klein (2001), who showed that high PNS employees prefer task-oriented leaders, i.e., leaders who were inclined to guide subordinates by planning and scheduling work tasks.

The work described previously suggests that the informational function of close monitoring by a supervisor is likely to be particularly salient for employees high in PNS. Moreover, recent work by Slijkhuis et al. (2013) showed that people high in PNS are not demotivated by controlling practices that reduce their autonomy. What matters for these individuals is that ambiguity is reduced. Even though employees high in PNS will experience lower autonomy when their supervisor engages in close monitoring, this lower autonomy in turn will not decrease motivation or satisfaction, because autonomy is not their main concern. Instead, they will experience higher role clarity. Since clarity is such a dominant concern for these employees, and, generally speaking, the fulfilment of personal needs enhances well-being (e.g., Baard, Deci, & Ryan, 2004; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010), we expect employees high in PNS to be more motivated and more satisfied when their supervisor engages in close monitoring.

In addition to these motivational outcomes, we expect a similar pattern of effects for employee innovative job performance, i.e., the degree to which employees generate, promote, and implement creative ideas (e.g., Janssen, 2001). On the whole, there is reason to expect that close monitoring will negatively affect innovation, because of its controlling nature. For example, Shalley and Perry-Smith (2001) found that a controlling feedback style not only diminished participants' sense of autonomy and intrinsic motivation, but also their creative performance (measured as idea generation, the first component of innovative job performance). Further, given that close monitoring signals that adherence to existing rules and regulations is expected, employees may feel that innovative behaviour—which by definition entails deviance from the norm—is not welcome, and hence may perform less creatively and innovatively (George & Zhou, 2001; Mumford & Gustafson, 1988). However, research shows that the effects of close monitoring on employee creativity are moderated by individual differences. George and Zhou (2001), as well as Zhou (2003), found that close monitoring and employee

personality interactively shaped employee creativity. Furthermore, innovative job performance is a broader construct than employee creativity. Creativity is commonly defined as the generation of ideas that are both novel and appropriate (e.g., Sternberg & Lubart, 1999), whereas innovation is about implementing creative ideas (e.g., West, 2002). Thus, innovative job performance requires that an employee not only comes up with creative ideas, but also is able to convince coworkers and supervisors of the value of these ideas, and subsequently is able to turn these ideas into actual products or procedures (Janssen, 2001; Kanter, 1988). From an innovation perspective, a possible advantage of supervisors who engage in close monitoring is that these supervisors give more explicit information about organizational goals and about relevant constraints, which may make effective innovation easier.

## OVERVIEW

Thus, we hypothesize that the effects of close monitoring on employees' job satisfaction, intrinsic work motivation, and innovative job performance are likely to be conditionally mediated by autonomy and role clarity; which of the two indirect paths holds, will depend on employees' PNS. When PNS is *low*, we expect a *negative* effect of close monitoring through a reduction of perceived *autonomy*. In contrast, when PNS is *high*, we expect a *positive* effect of close monitoring, mediated by increased *role clarity*.

## METHOD

### Participants and procedure

Only cases for which complete questionnaires were available from both supervisor and employee were included in the sample. These were 295 employees (42.0% male) and their supervisors ( $N = 52$ ) from three different organizations (a chemical industries company, a consultancy firm, and a medical organization). Supervisor ratings were anonymously matched with the employee ratings. The employees' mean age was 44.31 ( $SD = 9.92$ ), and their average job tenure was 7.64 years ( $SD = 8.23$  years). Both employees and their supervisors filled out questionnaires. A research assistant personally delivered the questionnaires to the participants. After filling out the questionnaires, the participants put them in closed boxes that were later collected by the research assistant.

### Measures

*Control variables.* We asked employees how long they had been working in this job, and we asked

supervisors how long they had been supervising this particular employee. Both were included as control variables in our analyses, because they were expected to relate to employees' perceptions of their job and the interaction with their supervisors. Further, we created two dummy variables which were included in the analyses as covariates to control for possible differences between the three organizations (Aiken & West, 1991).

*Close monitoring* was assessed using the slightly modified six-item close monitoring scale developed by George and Zhou (2001). The questionnaire includes items like "I need to do exactly what I am told". Participants rated the statements on a scale that ranged from 1 ("totally not agree") to 7 ("totally agree"). Cronbach's alpha for this scale was .72.

*Personal Need for Structure* was assessed using the Dutch version (see Rietzschel, De Dreu, & Nijstad, 2007) of the 12-item PNS scale developed by Thompson et al. (2001), which includes items such as "It upsets me to go into a situation without knowing what I can expect from it", and "I enjoy having a clear and structured mode of life". Cronbach's alpha was .80. Participants rated the statements on a scale that ranged from 1 ("totally disagree") to 7 ("totally agree").

*Job autonomy* was measured with an 11-item scale developed by Van Veldhoven (1996; for all items, see Van Yperen & Hagedoorn, 2003). This scale contains items like "Can you choose the methods to use in carrying out your work?" Participants responded on a scale that ranged from 1 ("never") to 4 ("always"). Cronbach's alpha was .89.

*Role clarity* was measured with a six-item scale from De Jong and Janssen (2005). An example of an item from this scale is "I know exactly what is expected of me". Participants responded on a scale ranging from 1 ("totally disagree") to 7 ("totally agree"). Cronbach's alpha was .73.

*Intrinsic work motivation*, the degree to which employees were motivated to do their work its own sake, was assessed using the Dutch version of the 12-item Work Motivation Scale developed by Blais,

Brière, Lachance, Riddle, and Vallerand (1993; for all items, see Van Yperen & Hagedoorn, 2003). Cronbach's alpha was .91. The general stem is: "Why do you do this job?" A sample item is: "For the pleasure it gives me to know more about my job". Items were followed by a 7-point response scale, ranging from 1 ("totally disagree") to 7 ("totally agree").

*Job satisfaction* was assessed using a five-item scale adapted from Bacharach, Bamberger, and Conley (1991). The scale includes items such as "How satisfied are you with your current job compared to jobs in other organizations?" Participants rated the statements on a scale ranging from 1 ("very dissatisfied") to 7 ("very satisfied"). Cronbach's alpha for this scale was .90.

*Innovative job performance* was assessed using the nine-item scale developed by Janssen (2001). Three items refer to idea generation (e.g., "How often does this employee generate creative ideas for improvement?"); three to idea promotion (e.g., "mobilizing support for innovative ideas"); and three to idea realization (e.g., "transforming innovative ideas into useful applications"). Supervisors rated how often the employees performed the behaviours described in the items on a scale ranging from 1 ("never") to 7 ("always"). Cronbach's alpha for the scale was .95.

## RESULTS

### Zero-order correlations

Table 1 presents means, standard deviations, and zero-order correlations for the variables measured in the study. Close monitoring was negatively related to innovative job performance,  $r = -.17$ ,  $p = .03$ , and autonomy,  $r = -.16$ ,  $p = .05$ , but was not related to intrinsic work motivation or job satisfaction. PNS was positively related to close monitoring,  $r = .19$ ,  $p = .001$ , and was negatively related to innovative job performance,  $r = -.24$ ,  $p < .001$ . Innovative job performance was further related to autonomy,  $r = .19$ ,  $p = .001$ , and marginally to role clarity,

TABLE 1  
Descriptives and zero-order correlations ( $N = 295$ )

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. PNS	4.19	0.75	–						
2. Close monitoring	3.55	1.03	.19**	–					
3. Autonomy	3.00	0.51	-.22**	-.16**	–				
4. Role clarity	5.61	0.72	.08	.03	.15*	–			
5. Intrinsic work motivation	5.34	0.84	-.02	.04	.15*	.33**	–		
6. Job satisfaction	5.38	1.02	.06	-.08	.20**	.39**	.53**	–	
7. Innovative job performance <sup>a</sup>	3.99	1.17	-.24**	-.17**	.19**	.10°	.06	.10°	–

° $p < .1$ , \* $p < .05$ , \*\* $p < .01$ . <sup>a</sup>Rated by supervisors.

TABLE 2  
Regression of job satisfaction on PNS and close monitoring ( $N = 295$ )

	$\beta$	$t$	$p$	Adj. $R^2$	Model $F$	Model $p$
Model				.09	5.09	<.001
Organization, dummy 1	.10	1.49	.135			
Organization, dummy 2	-.14	-2.11	.035			
Employee tenure (in months)	-.26	-4.36	<.001			
Leader tenure (in months)	-.03	-0.54	.590			
PNS	.05	0.90	.368			
Close monitoring	-.11	-1.79	.075			
PNS $\times$ Close monitoring	.13	2.27	.024			

$r = .10$ ,  $p = .08$ , but—surprisingly—not to intrinsic motivation,  $r = .06$ ,  $p = .30$ .

### Motivational outcomes—regression analyses

**Job satisfaction.** To test the hypothesis that the effect of close monitoring on job satisfaction was moderated by PNS, we regressed job satisfaction on the control variables (see earlier), close monitoring ( $Z$ -score), PNS ( $Z$ -score), and the interaction of the latter two. This analysis revealed a marginally significant main effect of close monitoring,  $\beta = -.11$ ,  $t = -1.79$ ,  $p = .075$ , that was qualified by a significant interaction of close monitoring and PNS,  $\beta = .13$ ,  $t = 2.27$ ,  $p = .024$  (see Table 2). Simple slopes analysis (Aiken & West, 1991) showed that close monitoring was negatively related to job satisfaction when PNS was low,  $\beta = -.23$ ,  $t = -2.78$ ,  $p = .006$ , but not when PNS was high,  $\beta = .02$ ,  $ns$  (see Figure 1).

**Intrinsic motivation.** The same analysis, but with intrinsic motivation as the dependent variable, only showed the anticipated interaction of close monitoring and PNS,  $\beta = .18$ ,  $t = 3.28$ ,  $p = .001$  (see Table 3). Simple slopes analysis showed that close monitoring was not related to intrinsic motivation when PNS was low,  $\beta = -.08$ ,  $ns$ , whereas close monitoring was positively related to intrinsic motivation when PNS was high,  $\beta = .28$ ,  $t = 3.57$ ,  $p < .001$  (see Figure 2).

### Motivational outcomes—tests of indirect paths

To test the indirect paths between close monitoring and job satisfaction, we used the PROCESS macro developed by Hayes (2012). This technique makes it possible to estimate multiple parallel indirect paths, while simultaneously testing for moderation on these paths. The indirect paths are estimated with a

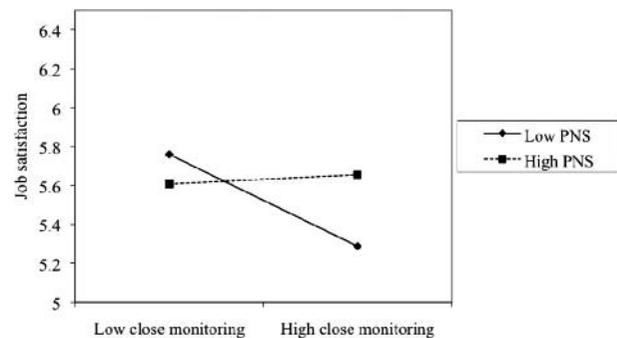


Figure 1. Job satisfaction as a function of close monitoring and PNS.

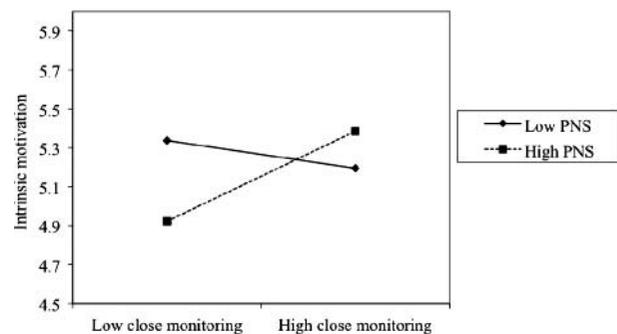


Figure 2. Intrinsic motivation as a function of close monitoring and PNS.

bootstrapping procedure, yielding 95% confidence intervals for the magnitude of the indirect effect at different levels of the proposed moderator. Further, unstandardized coefficients are provided for the other paths in the model.

First, this analysis showed that, as expected, close monitoring was negatively related to perceived autonomy,  $B = 0.15$ ,  $SE = 0.058$ ,  $t = -2.51$ ,  $p = .013$ . Also, and unexpectedly, PNS was negatively related to autonomy,  $B = -0.14$ ,  $SE = 0.059$ ,  $t = -2.42$ ,  $p = .016$ . The interaction between close monitoring and PNS was not significant ( $p > .5$ ); thus, close monitoring was associated with decreased autonomy, regardless of employees' PNS.

Second, this analysis showed that there was a significant interaction of close monitoring and PNS

TABLE 3  
Regression of intrinsic motivation on PNS and close monitoring ( $N = 295$ )

	$\beta$	$t$	$p$	Adj. $R^2$	Model $F$	Model $p$
Model				.13	7.37	< .001
Organization, dummy 1	.33	5.10	< .001			
Organization, dummy 2	.03	0.49	.621			
Employee tenure (in months)	-.18	-3.12	.002			
Leader tenure (in months)	-.11	-1.82	.069			
PNS	-.07	-1.16	.248			
Close monitoring	.09	1.66	.097			
PNS $\times$ Close monitoring	.18	3.28	.001			

TABLE 4  
Bootstrapped confidence intervals for indirect path to job satisfaction through autonomy

PNS ( $Z$ -score)	Effect	Boot SE	Boot LLCI	Boot ULCI
-1	-.048	0.029	-.123	-.002
0	-.028	0.016	-.069	-.004
1	-.009	0.015	-.055	.008

TABLE 5  
Bootstrapped confidence intervals for indirect path to job satisfaction through role clarity

PNS ( $Z$ -score)	Effect	Boot SE	Boot LLCI	Boot ULCI
-1	-.034	0.028	-.109	.008
0	.011	0.018	-.026	.046
1	.053	0.029	.007	.122

on role clarity,  $B = 0.13$ ,  $SE = 0.054$ ,  $t = 2.39$ ,  $p = .018$ ; the main effect of close monitoring was not significant ( $p > .5$ ). A separate simple slopes analysis showed that close monitoring was positively related to role clarity when PNS was high,  $B = 0.16$ ,  $SE = 0.08$ ,  $t = 2.11$ ,  $p = .036$ , but not when PNS was low,  $B = -0.09$ ,  $p = .23$ .

**Job satisfaction.** Bootstrapped confidence intervals (see Tables 4 and 5) for the indirect path through autonomy did not contain zero when PNS was low or at the mean, but did contain zero when PNS was high. In contrast, the bootstrapped confidence intervals for the indirect path through role clarity contained zero when PNS was low or at the mean, but did not contain zero when PNS was high. Further, the estimate of the direct effect was nonsignificant,  $B = -0.084$ ,  $SE = 0.056$ ,  $t = -1.505$ ,  $p = .134$ , suggesting full mediation.

**Intrinsic motivation.** Bootstrapped confidence intervals (see Tables 6 and 7) for the indirect path

TABLE 6  
Bootstrapped confidence intervals for indirect path to intrinsic motivation through autonomy

PNS ( $Z$ -score)	Effect	Boot SE	Boot LLCI	Boot ULCI
-1	-.026	0.019	-.075	-.001
0	-.016	0.011	-.046	-.001
1	-.008	0.011	-.041	.006

TABLE 7  
Bootstrapped confidence intervals for indirect path to intrinsic motivation through role clarity

PNS ( $Z$ -score)	Effect	Boot SE	Boot LLCI	Boot ULCI
-1	-.017	0.015	-.061	.003
0	.007	0.013	-.017	.034
1	.046	0.028	.004	.109

from CM to intrinsic motivation through autonomy did not contain zero when PNS was low or at the mean, but contained zero when PNS was high. In contrast, confidence intervals for the indirect path through role clarity contained zero when PNS was low or at the mean, but did not contain zero when PNS was high. The estimate of the direct effect was marginally significant,  $B = 0.089$ ,  $SE = 0.047$ ,  $t = 1.902$ ,  $p = .058$ , suggesting partial mediation.

Thus, employees low in PNS reported lower job satisfaction and were lower in intrinsic motivation because close monitoring diminished their perceived autonomy, whereas employees high in PNS reported higher job satisfaction and were higher in intrinsic motivation because they perceived more role clarity when feeling closely monitored.

### Innovative job performance—multilevel analysis

Because several supervisors rated more than one employee on innovative job performance, the

assumption of independence was violated. Indeed, analysis using the deviance test (e.g., Hox, 2010) showed that a multilevel structure fit the innovation ratings better than a single-level structure,  $\chi^2 = 37.76$ ,  $df = 1$ ,  $p < .001$ . Hence, in order to correct for the nested structure of these data, we analysed the ratings of innovative job performance using a multilevel procedure (with the SPSS Mixed command). In a random intercept model, we regressed employee innovative job performance on the control variables, close monitoring, PNS (Z-scores), and the interaction of close monitoring and PNS (see Table 8). This analysis showed negative main effects of close monitoring,  $B = -0.17$ ,  $SE = 0.06$ ,  $t = -2.71$ ,  $p = .007$ , and PNS,  $B = -0.26$ ,  $SE = 0.06$ ,  $t = -4.17$ ,  $p < .001$ . More importantly, the analysis also revealed the predicted interaction of close monitoring and PNS,  $B = 0.12$ ,  $SE = 0.06$ ,  $t = 2.07$ ,  $p = .04$ . Simple slopes analysis showed that close monitoring was negatively related to innovative job performance when PNS was low,  $B = -0.29$ ,  $SE = 0.09$ ,  $t = -3.30$ ,  $p = .001$ , but not when PNS was high,  $B = -0.05$ ,  $SE = 0.08$ ,  $t = -0.61$ ,  $p = .541$ . Specifically, whereas low PNS employees performed more innovatively when they experienced low levels of supervisory close monitoring, this was not the case for high PNS employees (see Figure 3).

TABLE 8  
Mixed model analysis for innovative job performance  
( $N = 295$ )

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Organization, dummy 1	-0.235	0.240	-0.978	.333
Organization, dummy 2	-0.690	0.293	-2.349	.022
Employee tenure (in months)	-0.001	0.001	-0.886	.376
Leader tenure (in months)	0.001	0.001	0.765	.445
PNS	-0.256	0.061	-4.174	<.001
Close monitoring	-0.171	0.063	-2.710	.007
PNS × Close monitoring	0.119	0.058	2.066	.040

Random intercept model, maximum likelihood estimation.

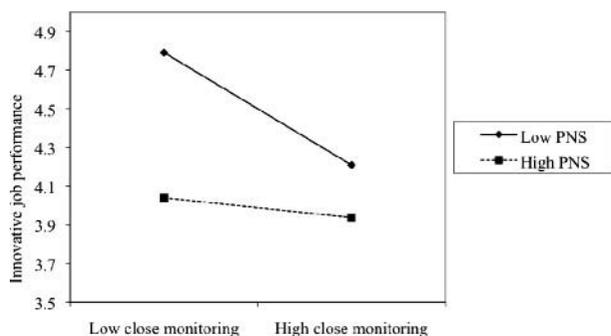


Figure 3. Innovative job performance as a function of close monitoring and PNS.

Because of the multilevel nature of these data, using the PROCESS macro was not possible. However, hierarchically adding autonomy, role clarity, and their interactions with PNS to the multilevel model showed no evidence for mediation, suggesting that the interactive effect of close monitoring and PNS on innovative job performance is explained by other variables not measured in this study.

## DISCUSSION

Previous work has shown that monitoring activities, such as supervisor close monitoring, can exert different effects on work outcomes. On the one hand, these activities are often perceived as controlling and therefore are considered a strain (e.g., Lu, 2005; Varca, 2006). On the other hand, monitoring can serve an informational function and therefore might motivate (some) employees and help them to shape their work behaviours effectively (e.g., Larson & Callahan, 1990). In this article, we argued that employees' epistemic needs (specifically, their Personal Need for Structure) determine the relative salience of these controlling and informational consequences of close monitoring, and that the effects of close monitoring on employee motivation, satisfaction, and innovative job performance will therefore be moderated by PNS.

In a field study in three organizations, we found strong support for these hypotheses. For intrinsic motivation and job satisfaction, close monitoring exerted a negative influence through reduced autonomy when PNS was low, but exerted a positive influence through enhanced role clarity when PNS was high. For innovative job performance, a lack of close monitoring only had beneficial effects when PNS was low, and not when it was high (although here we found no evidence for mediation by autonomy and role clarity).

One interesting yet unexpected finding was that, in contrast to other findings (see, e.g., Amabile, 1996, for an overview) intrinsic motivation was not related to innovative job performance. It is not immediately clear why this is the case. One reason may be that intrinsic motivation is usually studied as a predictor of creativity, which is related to, but certainly not the same as innovative job performance (e.g., West, 2002). Further, Shalley and Perry-Smith (2001) also reported a nonsignificant relation between intrinsic motivation and creativity. They speculated that intrinsic motivation might be a moderator on the relation between contextual factors and creativity, rather than a mediator. Recent work by Dysvik and Kuvaas (2011) shows that this may indeed be the case: They found that employee intrinsic motivation moderated the effects of job autonomy. Thus, further

research is needed to unravel the complex role of intrinsic motivation in shaping employee creativity and innovation.

Another interesting result that we did not hypothesize was the negative relation between PNS and autonomy. This could reflect a difference in perception between high and low PNS employees, but it is not clear what the cause of such a difference might be. One possibility is that employees high in PNS find it relatively easy and nonaversive to recall situations where they had low autonomy (e.g., Slijkhuis et al., 2013), and hence are more likely to report lower autonomy in general. However, this is highly speculative.

In contrast to the motivational outcome variables in this study, innovative job performance showed no evidence of mediation by role clarity and autonomy. This could be a consequence of our analytical strategy (testing the whole moderated mediation model with Hayes', 2012, PROCESS macro was not possible in a multilevel design). Alternatively, it may indicate that innovative job performance, although it was clearly related to both autonomy and role clarity, is more strongly predicted by other variables that mediate the interaction of close monitoring and PNS. This is particularly likely in light of the fact that innovative job performance was *low* for employees high in PNS, regardless of the level of close monitoring. Apparently, although close monitoring served a clear informational function for these employees, this was not enough to lead to higher levels of innovative performance. A possible explanation for this result lies in the findings reported by Rietzschel et al. (2007), who found that participants high in PNS only attained high levels of creative performance when their Personal Fear of Invalidity (PFI, the tendency to worry about the possibility of taking a wrong decision; Thompson et al., 2001) was low. It is possible that supervisory close monitoring in itself is not sufficient to decrease fear of invalidity, and that other supervisory behaviours are required to increase innovative job performance.

Another interesting candidate for mediation of the path to innovative job performance would be Anderson and West's (1996) Team Climate for Innovation. The different climate facets in this model (vision, safety, support for innovation, and task orientation) seem related to both autonomy and clarity, both of which are shown by our results to be important consequences of close monitoring. Thus, these climate facets may be differentially affected by close monitoring, depending on employees' PNS. For example, it is conceivable that a leader who engages in close monitoring increases team members' sense of a shared vision, but decreases safety. We would expect this combination to be detrimental for the innovative behaviours of low PNS employees, but

perhaps less so for high PNS employees, because for them a clear vision may be more important than a feeling of safety.

### Theoretical implications

Our results extend the literature on leadership, motivation, and innovation in interesting ways, confirming earlier findings that the effects of monitoring practices and supervisory close monitoring are contingent upon other factors (George & Zhou, 2001; Zhou, 2003), yet adding to these results by also addressing underlying mechanisms.

While largely consistent with the available literature, our results also differ from some important previous findings. For example, Choi, Anderson, and Veillette (2009) found a positive relation between close monitoring and creative performance. Importantly, however, their measurement of close monitoring only concerned the frequency with which leaders monitored employee performance, and did not refer to any controlling aspects of this monitoring. Thus, an interesting issue for future research would be the question which specific elements of supervisory monitoring behaviour are responsible for the positive or negative reactions of employees. Based on our results, we speculate that, had we used a scale that was more similar to the one used by Choi et al., we would have found even more favourable reactions on part of employees high in PNS, and possibly even a positive effect (rather than the absence of a negative effect) on innovative job performance.

An interesting and relevant finding is reported by De Vries, Roe, and Taillieu (2002), who found that employees' need for leadership moderated several leadership–outcome relationships. On the whole, however, the authors concluded that these moderating effects were weak. Our results reinforce the notion that employee needs are a plausible moderator of leadership effects, yet also suggest that not every need is equally likely to play this moderating role. More specifically, it seems important to use narrowly defined individual difference measures, rather than global constructs such as need for leadership or Big Five factors, because more specific measures can lead to more concrete predictions regarding underlying processes. Thus, in this study, consideration of the nature of Personal Need for Structure led us to derive specific hypotheses regarding the potential informational effects of close monitoring. Future research could address the role of other specific individual difference variables. For example, it would be interesting to see whether the relationships between PNS and such constructs as right-wing authoritarianism or social dominance orientation explain additional variance in the relation between leadership

behaviours and employee outcomes (see, e.g., Jost, Glaser, Kruglanski, & Sulloway, 2003).

Another interesting avenue for future research lies in the nature of the job tasks that an employee needs to perform. It is conceivable that the effects of close monitoring through autonomy and role clarity not only depend on characteristics of the employee, but also on specific task requirements. For example, some tasks call more strongly for explorative and creative behaviour than others, and this could in turn moderate the effects of close monitoring (e.g., Amabile, 1996). Further, Wielenga-Meijer, Taris, Wigboldus, and Kompier (2012) argue that the effects of autonomy on learning performance are curvilinear, such that very high amounts of autonomy may give rise to ambiguity—particularly when the learning task is cognitively demanding. Thus, future research should address the complex relation between contextual factors (such as leadership), task characteristics (such as cognitive demands), and individual difference variables (such as PNS).

### Limitations

Of course, the cross-sectional nature of the study does not allow us to make strong inferences about causality. An interesting way to follow up on these findings would be to conduct an experiment where monitoring practices are manipulated. This would also allow us to further disentangle the different behavioural elements that contribute to the effects of close monitoring (such as monitoring frequency vs. explicit control; see earlier). Further, much of our data was collected through self-reports, although the supervisory ratings of innovative job performance are an important exception. An interesting extension would be a study where contextual factors such as autonomy are operationalized differently, e.g., through observation by a third party or through relevant documentation within the organization.

### Practical implications

Although these results should be replicated and extended before specific recommendations for organizational practice can be given, some things are clear. In general, our results support an interactionist approach to innovation (Woodman, Sawyer, & Griffin, 1993), which states that adoption of different supervisory styles should be contingent on employee characteristics. Further, the specific pattern of results in this study suggests that leaders should attempt to maximize clarity (because this seems to be generally beneficial), while maintaining autonomy. However, which specific behaviours will increase clarity depends on the characteristics of the employee. All in all, close monitoring seems to be a risky strategy: It

increases clarity for some, but reduces perceived autonomy for every employee. Future research should attempt to shed more light on the way in which supervisors can reconcile these different and seemingly contradictory demands.

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