IX.
Linking Social Capital to Outcomes for Customers, Workers, and Firms

What Is It About Relationships? A Behavioral Theory of Social Capital and Performance

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Abstract

Researchers have consistently found a positive relationship between bundles of high-performance human resource (HPHR) practices and organizational performance, but, to date, the mechanisms underlying this relationship have remained unclear. Recent work has suggested "social capital" mediates the HPHR practice–performance relationship. Building upon this work I develop and test a behavioral theory of how this occurs. Specifically, I argue that HPHR practices signal the importance of high-quality relationships, and I find, using a sample of seventy-five hospital nursing units, that HPHR practices foster higher-quality interactions and capabilities for rapid error detection and correction, which, in turn, substantially reduce the incidence of medication errors and patient falls.

Introduction

Research in strategic human resource management (SHRM) has consistently shown a positive relationship between configurations of "high-performance" human resource (HPHR) practices such as extensive formal training programs, employee empowerment, and performance-based com-

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pensation and organizational performance (see, for example, Ichniowski, Shaw, and Prennushi 1997). These findings have been demonstrated to be robust in a number of industry-specific studies of automobile assembly (MacDuffie 1995), banking (Bartel 2004), steel production (Ichniowski et al. 1997), software development (Vogus and Welbourne 2003), and textile production (Dunlop and Weil 1997) as well as multi-industry samples (Huselid 1995). However, recent research has found that the effects of HPHR practices on performance may be overstated (see Cappelli and Neumark 2001). This suggests that there is a need for work that more clearly specifies and tests exactly *how* HPHR practices affect (or fail to affect) organizational outcomes.

Organizational social capital—the actual and potential resources embedded within, available through, and derived from the social relations within an organization (Leana and Van Buren 1999)—has been proposed as a primary mechanism through which HPHR practices impact performance. Subsequent empirical work has found that implementing HPHR practices affects organizational social capital (that is, increases the "density" of connections between employees) and, in turn, the performance of steel finishing lines (Gant, Ichniowski, and Shaw 2002) and high-technology firms (Collins and Clark 2003). Exactly how HPHR practices and the network of relationships within an organization influence behavior and performance, however, remains unclear. Therefore, I develop and test a behavioral theory of how HPHR practices beget performance.

Specifically, I argue that HPHR practices create a supportive context for the development of social capital by creating opportunities for relationships to emerge and signaling their importance to the organization's work. Creating a context supportive of such relationships leads to richer interactions between employees that fuel capabilities for managing the unexpected and higher performance. I empirically test these assertions by examining the effects of HPHR practices on the behavioral underpinnings of social capital and their resulting effects on medication errors and patient falls using a sample of seventy-five acute-care hospital nursing units.

Hypotheses

At the most micro level, social capital manifests itself through interactions grounded in trust, honesty, and mutual respect that enable the development of a nuanced understanding of a situation and allow for real-time synthesis of meaning when unforeseen situations arise. HPHR practices foster such interactions when employees are selected for their interpersonal skills as well as technical skills (Gittell 2000), employees are trained in interpersonal skills, and peers provide developmental feedback. All of these practices signal that

effective interrelating is an essential component of one's everyday practice. HPHR practices also make the emergence of high-quality relationships more likely when they provide the opportunity to connect by intensive socialization practices that allow new employees to engage in authentic communication with "old-timers" such that they are better equipped with the resources (that is, information, contacts) they need in order to do their job well. Widespread participation in the selection process also increases motivation for high-quality connecting as more current employees have a personal investment and greater trust in the new employee (Baker and Dutton 2006). Together these practices create a climate conducive to richer interactions. Thus, I hypothesize: *H1: HPHR practices will be positively associated with respectful interaction.*

Respectful interactions are essential because they nurture a collective capability for rapidly detecting and correcting unexpected events (that is, mindful organizing; see Weick, Sutcliffe, and Obstfeld 1999). Such interactions enable mindful organizing by equipping actors with a rich basis for action. Respectful interactions provide a rich basis for action because they are more likely to account for the nuances of, in the case of nursing, patient and unit conditions such that there is a greater awareness of vulnerabilities that could be the harbinger of complications and errors. Thus, I hypothesize: *H2: Respectful interaction will be positively associated with mindful organizing.*

Achieving high (that is, nearly error free) performance in a high-risk setting like an acute-care hospital nursing unit requires the rapid detection and correction of anomalous or unexpected events often when the anomaly to be detected is ambiguous, equivocal, and a "weak signal." Therefore, performance relies upon processes of collective sensemaking that facilitate the detection of anomalous events and fit them into a framework for action and processes of coordination that translate sensemaking into a coordinated response. A number of case studies of organizations that experience nearly error-free performance under extremely hazardous operating conditions where one would expect many errors have demonstrated that mindful organizing is responsible for their ability to detect dangerous anomalies as they emerge and for rapidly reconfiguring resources so as to coordinate a strong response in the face of the unexpected (Weick et al. 1999). Thus, I hypothesize: H3: Mindful organizing is associated with fewer medication errors and patient falls.

Method

I utilized mailed questionnaires to assess all the independent variables of interest as well as several control variables. Specifically, I collected data through two surveys: (1) a nurse manager survey assessing the HPHR practices implemented on the unit, organizational citizenship behavior, and unit-

level control variables, and (2) a RN survey to assess respectful interaction, the processes of mindful organizing, and additional control variables. Data were collected from inpatient units in eleven acute-care hospitals throughout the midwest United States that were all members of the same Catholic health system. Overall, I sent surveys to 2,566 RNs and 108 nurse managers, resulting in 1,251 (48.8 percent response rate) and 97 (89.8 percent response rate) usable surveys, respectively. A series of t-tests were done to ensure that there was no systematic difference between respondents and nonrespondents in terms of age, tenure, and educational background.

Variables

I utilized two archival measures of performance derived from hospital incident report data: the number of medication errors and patient falls occurring in a unit in a given month. These data were collected for the month after all surveys were returned. That is, if all surveys were returned by January 31, the corresponding dependent variable would be for the following month (February). I conducted analyses at three and six months (not reported) after the surveys were returned, and the results reported below are substantively similar. As a result of missing or otherwise incomplete data, the final sample used in the regression analyses was reduced to seventy-five units.

As recommended by prior research in strategic human resource management (for example, MacDuffie 1995), I measure HPHR practices as an additive index of six clusters of HR practices including selective staffing, extensive training, developmental performance appraisal, performance-based rewards, employee empowerment, and job security (alpha = 0.76). The survey items comprising each of these clusters were adapted from previous research (Snell and Dean 1992). To capture respectful interaction and mindful organizing, I developed two new measures. I used four survey items to measure respectful interaction (for example, "We demonstrate a great deal of mutual respect for each other," alpha = 0.84) and nine survey items to measure mindful organizing (for example, "We regularly discuss alternatives as to how to go about our normal work activities," alpha = 0.88). The measures of respectful interaction and mindful organizing have been shown to demonstrate adequate psychometric properties and individual-level survey items acceptably aggregated to the unit level (Vogus 2004; Vogus and Sutcliffe 2006). Due to space constraints, I refer interested readers to these papers for a fuller discussion.

To ensure that the effects of HPHR practices and mindful organizing were robust, I controlled for RN behavior as well as RN and unit characteristics. First, I controlled for three unit characteristics in my regression analyses—unit size (natural logarithm of the number of beds), task interdependence (a five-

item measure adapted from Pearce and Gregerson [1991], alpha = 0.81), and the complexity of the work processes on the unit (three survey items adapted from Preuss [2003], alpha = 0.70). Second, I controlled for organizational citizenship behavior (six items adapted from Podsakoff et al. 2000, alpha = 0.89) in the models of medication errors and patient falls to ensure that my measure of mindful organizing was not merely capturing the effects of RN effort and willingness to go above and beyond the call of duty. To ensure that HPHR practices and mindful organizing were influencing future performance and not merely the artifact of prior performance, I controlled for prior performance (the number of errors or falls from the prior month). In additional models not reported I also controlled for unit type (dummy variables for if the unit was an intensive care unit, surgical unit, or medical unit), the average patient load per nurse (as reported by the nurses), the use of clinical pathways (dummy variable), and the presence of a no-fault error reporting system (dummy variable); the results were substantively identical.

Results

Table 1 shows the correlations between all the variables used in this study. Most notable is the fact that respectful interaction and mindful organizing are very highly correlated ($r = 0.80$). While these two variables should be closely related given their theorized relationship, it could pose a problem to the extent that it creates multicollinearity. Multicollinearity is not a concern here because these variables do not appear simultaneously in the same models, and even if they were to appear in the same model additional analyses (not reported) revealed that variance inflation factors, which quantify how much the variance of the estimated regression coefficient is inflated by the existence of multicollinearity, were well within acceptable levels (Chatterjee and Price 1991).

I utilized negative binomial for analysis of the count variables (medication errors and patient falls; Long [1997]), regression equations, and ordinary least squares for the models of respectful interaction and mindful organizing to test my hypotheses. Given that my unit of analysis (the nursing unit) is nested within a hospital and, as such, shares hospital-level properties that may affect the variables of interest, units within the same hospital cannot be considered independent. To correct for this, I use robust standard errors with clustering by hospital in all models. Table 2 reports the results of these analyses. In Model 1 I find that HPHR practices are positively associated with respectful interaction (B = 0.10, $p < .05$) supporting hypothesis 1. Model 2 reveals respectful interaction is strongly associated with mindful organizing (B = 0.57, $p < .001$) supporting hypothesis 2, and in Models 3 and 4

TABLE 1
Means, Standard Deviations, and Correlations for Variables Used in Analyses

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Errors	1.61	1.78										
Prior Errors	2.22	2.38	0.55***									
Falls	1.59	2.26	0.28*	0.36**								
Prior Falls	1.71	3.20	0.04	0.05	0.17							
Mindful Organizing	5.15	0.42	−0.25*	−0.32**	−0.25*	−0.11						
Respectful Interaction	5.35	0.51	−0.01	−0.14	−0.08	−0.04	0.80***					
HPHR	4.93	0.72	0.11	0.05	−0.20†	−0.04	0.15	0.21*				
OCB	5.13	0.86	0.14	−0.04	0.01	0.12	0.35***	0.47***	0.41***			
Task Interdependence	4.95	0.45	−0.17	−0.16	−0.15	−0.36**	0.52***	0.46***	0.17†	0.14		
Work Process Complexity	5.29	0.96	−0.17	0.05	−0.16	0.03	0.05	0.05	0.21*	0.24	0.04	
Unit Size			0.35**	0.34**	0.42***	0.24*	−0.38***	−0.21*	−0.12	−0.14	−0.31**	−0.18†

Note: $N = 75$ for all correlations with errors and falls; $N = 97$ for all other correlations.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 2
Regression Analyses of Respectful Interaction, Mindful Organizing, Medication Errors, and Patient Falls

Variables	Model 1 DV = Respectful Interaction	Model 2 DV = Mindful Organizing	Model 3 DV = Errors	Model 4 DV = Falls
Mindful Organizing			–0.48*	–0.95**
			(0.27)	(0.40)
Respectful Interaction		0.57***		
		(0.05)		
HPHR Practices	0.10*	–0.02	0.08	–0.46**
	(0.04)	(0.04)	(0.19)	(0.16)
Unit Size	–0.06	0.45*	1.22**	–0.14**
	(0.09)	(0.04)	(0.19)	(0.46)
Interdependence	0.47***	0.14		
	(0.07)	(0.08)		
Work Process Complexity	–0.01	–0.01	–0.26***	–0.13
	(0.05)	(0.02)	(0.08)	(0.15)
OCB			0.36*	0.40*
			(0.15)	(0.17)
Prior Errors			0.18***	
			(0.04)	
Prior Falls				0.03
				(0.05)
Constant	2.74***	2.02***		2.23
	(0.62)	(0.34)		(3.13)
F	68.65***	109.47***		
R^2	0.23	0.70		
χ^2			143.39***	30.21***
N	97	97	75	75

Note: Values in parentheses are robust standard errors. Significance tests are one–tail for independent variables, two–tail for control variables.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

I find that mindful organizing is associated with lower incidence of medication errors (B = -.48, p < .05; a 16 percent decrease in errors for a standard deviation increase in mindful organizing) and patient falls (B = -0.95, p < .001; a 29 percent decrease in falls for a standard deviation increase in mindful organizing), supporting hypothesis 3. Interestingly, HPHR practices have

no direct effect on the processes of mindful organizing (p > 0.56) or the incidence of medication errors (p > 0.65) but have a strong negative association with the occurrence of patient falls. Lastly, and surprisingly, organizational citizenship behavior was positively associated with medication errors and falls (both p < .02). This suggests that in dynamic and interdependent work like acute-care nursing, typically performance-enhancing behaviors can actually have negative unintended consequences.

Conclusion

In this paper I developed a behavioral approach to understanding how HPHR practices generate social capital and performance. My analyses revealed that implementing HPHR practices creates the opportunities for and signals the importance of respectful interaction. In turn, these respectful interactions create the relational infrastructure upon which the unit-level capabilities for rapid error detection and correction (that is, mindful organizing) can be built, which results in substantially lower levels of medication errors and patient falls. These findings are consistent with my hypotheses as well as an emerging body of research demonstrating the importance of relationships and relational processes on performance (see Gittell 2000) and provide evidence that the behaviors occurring within networks are also an essential mechanism for understanding the multifaceted effects of HPHR practices and organizational performance. Although my results suggest that respectful interaction and mindful organizing underlie social capital, future research needs to directly examine the relationship among network structure (for example, density), respectful interaction, mindful organizing, and performance. Such research could help further understand the complex ways in which HPHR practices affect performance as well as how network structure influences individual and collective action.

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