

A COLLABORATION-BASED MODEL OF WORK MOTIVATION AND ROLE AMBIGUITY IN PUBLIC ORGANIZATIONS

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ABSTRACT: *Intra-organizational collaboration has long been recognized as a potential source of improved performance for public organizations. In collaborative organizations, frontline employees can leverage interpersonal networks to access a broad pool of expertise and experience, resources that can then be used to overcome obstacles or take advantage of emergent opportunities. Given this link to goals, information flow, and empowerment, this study examines how intra-organizational collaboration affects work motivation, and posits that reduced role ambiguity plays a key role in this relationship. Building on previous literature, three species of collaboration—vertical interpersonal, horizontal interpersonal, and inter-work unit collaboration—are discussed. Using data from a large survey of American federal employees, structural equation modeling is used to test the hypothesized model. The results of the analysis suggest that reduced role ambiguity functions as an important mediating mechanism linking intra-organizational collaboration to work motivation. The implications of these findings for public management are discussed.*

KEYWORDS: *bureaucracy, collaboration, motivation, role ambiguity.*

Whether across public organizations, between government and citizens, or with the private sector, the performance-enhancing potential of collaboration in the public sector is widely recognized by scholars (Christensen & Lægveid, 2007; Kettl, 2006; O’Leary & Bingham, 2009; Thomson & Perry, 2006; Vigoda, 2002). Within organizations, collaboration occurs at various levels, and highly collaborative organizations allow employees to strategically organize collective efforts in the service of salient objectives and organizational goals that cannot be achieved independently (Whitford, Lee, Yun, & Jung, 2010). Given that public organizations can face complex, interdependent, and

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sometimes conflicting organizational goals (Rainey & Jung, 2015), processes that allow workers to surface the tacit knowledge and other resources distributed across their organization may be valuable tools that can strengthen operational coherence and impact. Such processes are closely associated with collaboration (Droege & Hoobler, 2003; Gajda & Koliba, 2007). Indeed, the United States Office of Personnel Management sees enhancing intra-organizational collaboration as a key strategic initiative linked closely with performance (U.S. Office of Personnel Management, 2014).

While inter-organizational and inter-sector collaboration has been thoroughly studied in the public administration literature, almost no research has focused on the effects of intra-organizational collaboration and its effects on frontline employees. However, given that the motivation and attitudes of public employees are a core element of organizational performance in the public sector (Kim, 2005; Rainey & Steinbauer, 1999), better understanding of how collaboration is linked to individual-level perspectives is a nontrivial research goal. The present study addresses this question and advances a collaboration-based model of public sector work motivation that posits reduced role ambiguity as a key mediating factor. Following Whitford et al. (2010), I introduce three species of intra-organizational collaboration, and argue that the level of collaboration in a given public organization impacts the resources, information, and goal salience of frontline employees. These factors have been shown in previous literature to have a robust link with employee job perceptions and motivation (Pandey & Wright, 2006; Wright, 2004). Drawing on public- and private-sector literature, I propose a series of empirical hypotheses, and test them using data from the United States Federal Employee Viewpoint Survey of 2012 and structural equation modeling (SEM). Following a presentation of the results of the analysis, I discuss the study's findings, and suggest some directions for future research. This study contributes to our understanding of intra-organizational collaboration and its potential benefits in the public sector by providing an employee-level analysis of its effects.

Literature Review

COLLABORATION IN PUBLIC ORGANIZATIONS

As a strategy to enhance organizational performance and responsiveness, collaboration has continued to gain credibility among public administration scholars (Kettl, 2006; Osborne & Gaebler, 1993; Thomson & Perry, 2006; Whitford et al., 2010). Collaboration is undertaken between individuals or groups, both between and within organizations, and has been defined variously. Cunningham, Olshfski, and Abdelrazek (2008, p. 59) define collaboration as the process of

“carrying out the policy directive of a duly chosen decision maker or decision-making body by working with others, together exploring options in deciding what to do or how to do it.” Agranoff and McGuire (2004, p. 4) suggest that the core of the concept is a “purposive relationship designed to solve a problem by creating or discovering a solution with a given set of constraints.” As these definitions suggest, the conceptual boundaries of collaboration overlap with a number of related constructs, such as cooperation and coordination. Collaboration is usually distinguished from these by its more engaged nature, with participants actively shaping the agenda rather than passively acquiescing to it (Hardy, Lawrence, & Grant, 2005). In this sense, collaboration is a “higher-order type of collective action,” distinguished from cooperation and related constructs in terms of its “depth of inter-action, integration, commitment, and complexity” (Thomson & Perry, 2006, p. 23).

The majority of public administration scholarship on collaboration has studied the phenomenon as it occurs between organizations or sectors. This study focuses on intra-organizational collaboration, defined as any freely formed strategic partnership within an organization aimed at achieving “common goals through communicating and sharing strategies, knowledge, resources, and information” (Whitford et al., 2010, p. 323). While collaborative partnerships can sometimes take on formal characteristics when they are initiated or over time (Bingham & O’Leary, 2006), the types of collaboration that are of principal interest here are those which are organized informally and which rely on participating individuals to recognize the legitimacy of different interests and commit to decisions. This distinction is common at the inter-organization and inter-sector levels (see Thomson & Perry, 2006), but is also relevant to collaboration within a given organization.

In public organizations, attitudinally consequential interpersonal processes are contextualized by the formal authority structures and goals that define the organizational roles of participants (Campbell & Im, 2015a). To capture both the social-psychological and structural characteristics of intra-organizational collaboration, Whitford et al. (2010) operationalize the concept with reference to the individuals and groups involved. The present study uses this framework and focuses on vertical collaboration between frontline employees and their superiors (vertical interpersonal collaboration), collaboration between members of the same work group (horizontal interpersonal collaboration), and collaboration across work units (inter-work unit collaboration). Fundamentally, these types of intra-organizational collaboration can be understood as mechanisms through which collective action is oriented and organized, and scholars have demonstrated that such mechanisms have significant consequences for employee attitudes and motivation (Pandey & Wright, 2006; Stazyk, Pandey, & Wright, 2011). The next section explores how

intra-organizational collaboration can impact the work motivation and role ambiguity of frontline employees.

INTRA-ORGANIZATIONAL COLLABORATION, ROLE AMBIGUITY, AND WORK MOTIVATION

Work motivation is loosely defined as the willingness of employees to apply themselves fully in their work (Wright, 2004), and various factors, including perceived job importance, job goal difficulty, and self-efficacy, are related to work motivation in the public sector (Wright, 2004, 2007). Unlike public service motivation (PSM), a broader concept that captures the affinity of government workers for the values and ideals embedded in public sector institutions (Perry & Wise, 1990), work motivation is more closely linked to the specific organizational and job context (Wright, 2004), and therefore may be a better fit than PSM with the concept of intra-organizational collaboration.¹

As a process in which employee effort is oriented and coordinated, intra-organizational collaboration is relevant to the work motivation of employees. In the classical bureaucratic model, which has long been the foundation of public sector organizations (Sager & Rosser, 2009), coordination is achieved primarily through a vertical and horizontal division of human resources, authority delimited by rank, and detailed job descriptions, and substantive decision-making is concentrated at the apex of the organization (Weber, 1978). However, as an organization interacts with its environment, the interdependent nature of information often makes organizational boundaries less relevant (Agranoff & McGuire, 2001), and highly centralized systems can facilitate goal displacement and reduce the perception that goals can be achieved regardless of the effort expended, thereby damaging employee motivation, commitment, and role clarity (Pandey & Wright, 2006; Stazyk & Goerdel, 2011; Stazyk et al., 2011; Wright, 2004). In contrast, in collaborative initiatives, patterns of behavior are not determined exclusively or primarily by the organization's formal divisions and hierarchy, but rather by the perceived factors necessary to achieve shared objectives. In collaborating, employees leverage interpersonal networks to form temporary and informal partnerships to produce solutions to common problems or take advantage of time-sensitive opportunities (Whitford et al., 2010). In this sense, collaboration simultaneously substitutes shared goals for formal procedures as the criteria for appropriate action and deepens the pool of resources and expertise available to collaborators, potentially increasing the perception that difficult goals are addressable. These empowering characteristics of collaboration link the practice closely with self-actualization and job satisfaction (Aram, Morgan, & Esbeck, 1971; Jung, 2014), and from a goal-setting perspective, difficult

but addressable goals are closely linked with motivation, a theory with much empirical support (Bronkhorst, Steijn, & Vermeeren, 2013; Locke & Latham, 2002; Wright, 2004).

Given that intra-organizational collaboration takes place within or in parallel to a bureaucratically structured environment, the three different types of collaboration proposed by Whitford et al. (2010) may impact employee perceptions of their work differently. For example, given the difference in formal authority, frontline employees may perceive a relatively high level of value attached to resources obtained through vertical interpersonal collaboration. Moreover, influence sharing between hierarchically unequal individuals can heighten the task significance and job satisfaction of frontline employees (Wright & Kim, 2004), which should positively impact work motivation. In contrast, while horizontal interpersonal collaboration takes place between similarly situated employees, the tasks of those in the same work unit are likely to be more homogeneous than those at different levels of the organizational hierarchy or in different divisions. As such, the resources and expertise distributed across the work unit accessed through horizontal interpersonal collaboration are likely to be highly relevant to the challenges that a given employee faces at work. Access to such resources may, in turn, heighten self-efficacy beliefs and motivation. On the other hand, inter-work unit collaboration may diversify the pool of expertise and resources available in ways which vertical interpersonal and horizontal interpersonal collaboration do not, as well as bring the broader goals of the organization as a whole into sharper relief. Such outcomes, again, may be related to heightened motivation for collaborators.

While these differences suggest that the effects of the three different species of collaboration may be distinct, they share the common characteristics of broadening the pool of resources and knowledge available to employees and empowering them to address difficult job goals. These shared characteristics suggest that each type of collaboration will positively affect work motivation. The following three hypotheses are proposed.

H1a, H1b, H1c: Vertical interpersonal, horizontal interpersonal, and inter-work unit collaboration are positively related to work motivation in public organizations.

While the function of intra-organizational collaboration as a framework of collective action suggests that its processes are linked with work motivation, a second and related line of reasoning implies that collaboration may also impact how employees understand their own work and how that work relates to the goals of the organization as a whole. In particular, as “novelty, complexity, uncertainty, and ambiguity” characterize both the goals of public organizations and the conditions under which collaboration becomes most necessary (Chun & Rainey, 2005; Lawson, 2004, p. 235), employee levels of role

ambiguity in public organizations may also be closely connected to levels of intra-organizational collaboration. Understood as a type of information deficiency, role ambiguity is defined as the inability of an employee to properly evaluate different types of behavior in relation to goals and expectations (Pearce, 1981; Rizzo, House, & Lirtzman, 1970). Scholars have demonstrated that organizational characteristics such as procedural constraints and centralization, which contrast sharply with collaborative processes, are connected with reduced intra-organizational information flow and more ambiguous job goals among staff (Pandey & Wright, 2006; Willem & Buelens, 2006; Wright, 2004). On the other hand, informal, interpersonal, and inter-unit partnerships built around common objectives can increase perceived goal interdependence and create a culture of information sharing (Tjosvold, 1988; Tsai, 2002; Willem & Buelens, 2009; Yang & Maxwell, 2011). As such, a more collaborative organizational climate should ultimately lessen employee role ambiguity on the job. Scholars have suggested that organizational knowledge increases with use and that employees often have “tacit knowledge” that is only surfaced in the process of collaboration with other members (Droege & Hoobler, 2003). In this sense, a given organization’s learning capacity is embedded as much in its social as its formal structure, and collaborative communities of practice that form across organizational boundaries can facilitate the ability of an organization to learn and adapt to change (Gajda & Koliba, 2007). Such reasoning suggests that collaboration is closely linked with how well employees understand their organizational roles.

H2a, H2b, H2c: Vertical interpersonal, horizontal interpersonal, and inter-work unit collaboration are negatively related to role ambiguity in public organizations.

It is proposed here that reduced role ambiguity is a key mechanism through which intra-organizational collaboration influences work motivation. Work motivation may be undermined to the extent that employees remain unclear about their organizational roles, and, as a consequence, reduced role ambiguity should be associated with higher levels of work motivation. Employees who are unclear about their roles may hesitate to act and thereby also feel unable to create effective change in the organization (Sawyer, 1992), leading to a loss of motivation to exert effort. Role ambiguity has been linked closely to low levels of intrinsic motivation (Sawyer, 1992), and as Spreitzer (1996) points out, employees’ roles in their organization can only take on personal meaning to the extent that they are well understood and clear. In other words, employees who are unclear about their roles may be unable to find meaning in their work, and thereby experience decreased mission valence, another construct tied closely to work motivation in the public sector (Rainey & Steinbauer, 1999;

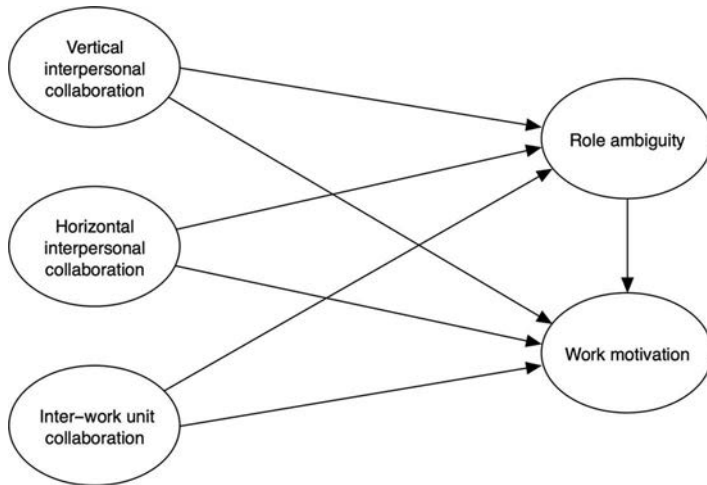


Figure 1. Analytical Framework

Wright, 2007). Role ambiguity also is known to damage self-efficacy beliefs (Jex & Gudanowski, 1992), which can undermine self-confidence and thereby the motivation to exert effort on behalf of the organization. This reasoning is formalized in the following hypotheses.

H3, H3a, H3b, H3c: In public organizations, role ambiguity is negatively related to work motivation, and mediates the relationships between vertical interpersonal, horizontal interpersonal, and inter-work unit collaboration and work motivation.

Figure 1 shows the analytical framework representing the sum of the hypotheses proposed in this study.

Data and Measurements

DATA

To test the hypotheses outlined above, the study uses data from the Federal Employee Viewpoint Survey (FEVS) conducted over the period of April and June in 2012 by the United States Office of Personnel Management. The survey was conducted online for employees of the U.S. federal service. In total 1,622,375 employees across 82 agencies (comprising 97% of the executive workforce) were given the opportunity to participate. In total, 687,687 employees responded, representing a response rate of 46.1%.

Respondents were asked to specify their supervisory status according to a five-level classification. Nonsupervisors made up the largest portion of the

respondents at 65.5% (421,305 responses), and team leaders the second largest at 14.3% (92,244 responses), for a total of 79.8% (513,649 responses). As the hypotheses of the study target frontline employees, it uses observations from this group (the dataset does not distinguish between these two job categories, and thus they are not distinguished in the analysis).

MEASUREMENTS

While the FEVS was not designed for the purpose of testing the hypotheses proposed in this study, it contains questions that reflect closely the relevant dimensions of the different concepts as described in previous literature. After selecting relevant items, statistical tests were performed to evaluate the internal consistency and discriminant validity of the resulting constructs. As the responses used in the survey are drawn exclusively from a self-reported survey, confirmatory factor analysis was used in order to evaluate the severity of common method variance in the data (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The results of these tests are presented below. The complete list of items used to measure the constructs of interest are available in Table 1. All questions were answered on a 5-point scale ranging from strongly disagree to strongly agree.

Work motivation is a difficult concept to define with precision (Wright, 2001). While it has been suggested that the construct has the three dimensions

Table 1. Measurements

Variables and items (α s in parentheses)

Motivation (0.756)

When needed, I am willing to put in the extra effort to get a job done.

I am constantly looking for ways to do my job better.

Role ambiguity (all questions reversed) (0.761)

I have enough information to do my job well.

I know what is expected of me on the job.

I know how my work relates to the agency's goals and priorities.

Vertical interpersonal collaboration (0.894)

My supervisor/team leader provides me with opportunities to demonstrate my leadership skills.

My supervisor/team leader provides me with constructive suggestions to improve my job performance.

My supervisor/team leader listens to what I have to say.

Horizontal interpersonal collaboration (0.726)

The people I work with cooperate to get the job done.

Employees in my work unit share job knowledge with each other.

Inter-work unit collaboration (0.927)

Managers promote communication among different work units (for example, about projects, goals, needed resources).

Managers support collaboration across work units to accomplish work objectives.

of persistence, intensity, and direction (Mitchell, 1997), the core of the concept is a willingness on the part of the employee to expend effort in the service of organizational goals. The two questions selected to measure work motivation reflect this conceptual core. While not identical, these items capture the meanings of employee effort, job involvement, and exceptional behavior on the job that Wright's (2004) 6-item scale describes. Despite their face validity and broad consistency with existing measures, however, the two items may not be a perfect measure of work motivation, which should be kept in mind when interpreting the results of this study. The construct's alpha value was 0.756.

Role ambiguity has been defined as an inability to judge the appropriateness of different behaviors resulting from a deficiency of relevant information (Pearce, 1981; Rizzo et al., 1970). Pandey and Wright (2006) argue that role ambiguity also entails a lack of understanding of how one's job relates to the broader context of organizational goals. These different dimensions of role ambiguity are reflected in the items chosen and capture the ideas of information adequacy, unclear expectations, and goal context which are common to other measures of role ambiguity in the public sector literature (e.g., Pandey & Wright, 2006). The construct was found to be internally consistent, with an alpha value of 0.761.

As a concept, collaboration incorporates notions of action orientation, effective communication, knowledge and resource sharing, collective strategic planning, and goal alignment (Whitford et al., 2010). The measurements chosen for this study broadly reflect these notions. The three questions that measure vertical interpersonal collaboration reflect a noncoercive interpersonal relationship characterized by effective communication in both directions. The questions chosen to measure horizontal interpersonal collaboration capture goal-oriented cooperation and information sharing between members of the same work unit. The two questions measuring inter-work unit collaboration focus on managerial support for cross-unit information and resource sharing, and have both strengths and weaknesses for measuring the intended construct. For instance, unlike the questions used for the first two dimensions of collaboration, these questions do not ask about the actual behavior of employees, and as such there may be cases where employees perceive support for collaboration across work units but do not themselves participate in it. In this case, the effects of collaboration may be limited. On the other hand, the items do capture the extent to which intra-organizational collaboration at the work unit level is viewed as an officially sanctioned process. Moreover, even if employees do not seek the input and cooperation of other employees from different work units, they may nevertheless be more frequently exposed to employees from other work units in organizations that foster a collaborative organizational climate. Importantly, the use of "support" and "promote" in the questions is also consistent with the informal,

noncompulsory dimension of collaboration as defined in the literature review. Finally, collaboration in general and inter-work unit collaboration in particular have a normative organizational basis (Srivastava & Banaji, 2011), and it is likely that managers can help provide this foundation. Cronbach's α exceeded the conventional level for acceptable internal consistency for each of the constructs.

In the principal analysis, this study controls for the influence of both agency tenure and gender on both role ambiguity and motivation. Experience gained through longer periods of tenure at a given agency may reduce role ambiguity, however, and tenure may also be linked to decreased motivation (Moynihan & Pandey, 2007). Agency tenure is measured on a 5-point scale ranging from "up to 3 years" of agency experience and culminating with "more than 20 years." Gender has also been linked to motivation in the public sector in a number of ways (DeHart-Davis, Marlowe, & Pandey, 2006), though no specific hypotheses related to gender are proposed here. In the analysis, "Female" responses are coded 1.

Results

SUMMARY STATISTICS

Table 2 shows univariate and bivariate statistics for the variables used in the study. Composite variables were created by averaging the sum of responses across the relevant questions. Work motivation and role ambiguity have mean values above and below the mean values of the scale, and the two constructs are correlated at -0.404 ($p < 0.001$). These statistics suggest that, on average, federal employees perceive themselves to be highly motivated and to have sufficient information and clarity about job goals. The three collaboration variables also have mean values above the scale midpoint and are correlated with one another, though at levels low enough so as to not suggest a lack of discriminant validity between constructs (correlation coefficients range from 0.502 to 0.573).

Table 2. Univariate and Bivariate Statistics

	<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	Work motivation	4.46	0.60				
2	Role ambiguity	2.09	0.78	−0.404			
3	Vertical interpersonal collaboration	3.70	1.03	0.278	−0.549		
4	Horizontal interpersonal collaboration	3.78	0.92	0.230	−0.472	0.512	
5	Inter-work unit collaboration	3.35	1.11	0.247	−0.547	0.573	0.502

Note: All correlations significant at $p < 0.001$.

Finally, the three collaboration variables are all positively correlated with work motivation (with values ranging from 0.230 to 0.278) and negatively correlated with role ambiguity, though correlations with the latter are stronger (ranging from -0.472 to -0.549). All of these statistics are broadly consistent with the hypotheses of this study.

MEASUREMENT MODEL

A series of confirmatory factor analyses (CFA) were performed in order to further assess the discriminant validity of the measures used in the analysis, as well as to evaluate the extent to which the data suffer from common method variance. In total, 11 different models were evaluated. To assess how well each proposed factor structure fit the data, a number of goodness-of-fit indices with an established reputation in the methodological literature were used (Hu & Bentler, 1999; Sharma, Mukherjee, Kumar, & Dillon, 2005). Indices used include the Comparative Fit Index (CFI), the Non-normed Fit Index (NNFI), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). Chi-square significance tests were also produced, although the sample size is too large for this test to produce meaningful results (all χ^2 statistics were highly significant). For the CFI and NNFI, higher values represent better model fit, with values greater than 0.900 the minimum threshold for model acceptance. For both the SRMR and the RMSEA, lower values are better, and the minimum threshold for both of the indices is 0.080.

Of the 11 models tested, only the five-factor model, with all individual observed items loading onto their respective latent constructs, met all the relevant fit criteria (CFI: 0.991; NNFI: 0.986; SRMR: 0.018; RMSEA: 0.037). In terms of chi-square differences, the five-factor model performed about 97% better than the single-factor model, an average of 93% better than four possible three-factor models, and an average of 86% better than four alternative four-factor models. Collectively, these statistics suggest that the five factors can be considered sufficiently empirically distinct and the five-factor structure appropriate for structural modeling.

STRUCTURAL EQUATION MODELING

To test the model proposed by the study, SEM, including both a measurement and a structural model, was conducted using Stata 13.1. As the hypotheses proposed suggest a relatively complex relationship between the variables, this methodology is recommended because it allows the proposed relationships to be examined simultaneously while also taking into account measurement error (Hu & Bentler, 1999). Apart from a statistically significant chi-square value, all goodness-of-fit indices indicated that the proposed model fit the data well

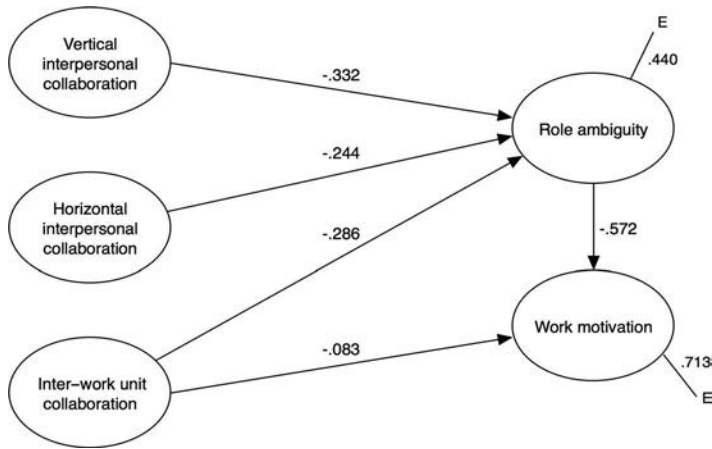


Figure 2. Results of Structural Equation Modeling

(CFI: 0.989; NNFI: 0.983; SRMR: 0.017; RMSEA: 0.035). Figure 2 shows the structural coefficients between latent variables and residuals of the endogenous constructs. To improve readability, nonsignificant paths and covariance links between exogenous variables are not shown (the three collaboration latent variables show inter-construct covariance coefficients ranging from 0.615 to 0.636, all significant at $p < 0.001$). To provide an alternative robustness check of the path coefficients, a second model was estimated with standard errors clustered at the agency level. This estimator relaxes the assumption that error terms are uncorrelated at the group level, though it is less efficient than models using regular standard errors (Stata, 2013). As the path coefficients showed no qualitative or significance difference between the two models, the model with regular standard errors is used as the basis of the interpretation of the results below. All paths displayed in the figure are significant at levels exceeding $p < 0.001$, though given the size of the dataset, a discussion of the significance of the various parameter estimates will be based on the relative size of the standardized regression coefficients rather than statistical significance alone.

Hypotheses 1a, 1b, and 1c proposed that the three species of intra-organizational collaboration would each have a positive, direct relationship with work motivation. The results of SEM suggest that these hypotheses should be rejected. After taking into account the effect of role ambiguity, both vertical interpersonal collaboration and horizontal interpersonal collaboration show no statistically significant relationship with work motivation. Inter-work unit collaboration, on the other hand, does have a significant relationship with work motivation, though the coefficient is negative (-0.083 , $p < 0.001$). This negative coefficient is particularly striking given that the two variables were found to be

positively correlated at the bivariate level at a similar level to the other two collaboration constructs (0.247, $p < 0.001$). Further reflection on this result is presented in the next section.

The effect of a given independent variable on an outcome variable should not be understood in isolation of important mediating factors (Rucker, Preacher, Tormala, & Petty, 2011), and SEM is particularly suited for mediation testing, as it estimates both direct and indirect effects simultaneously (Iacobucci, Saldanha, & Deng, 2007). Hypotheses 2a, 2b, and 2c stated that the three types of intra-organizational collaboration would be negatively related to role ambiguity, and Hypotheses 3a through 3c proposed that role ambiguity would mediate the relationship between the three types of collaboration and work motivation. The results of SEM reveal a strong, negative path coefficient of -0.572 linking role ambiguity and work motivation, which suggests that how well employees understand their job roles is an important motivational factor. This result provides support for Hypothesis 3. Secondly, SEM suggests that all three intra-organizational collaboration latent variables have negative, statistically significant effects on role ambiguity. Of the three, vertical interpersonal collaboration has the largest coefficient at -0.332 , though both intra- and inter-work unit variables have nontrivial effects as well (-0.244 and -0.286 , respectively, $p < 0.001$).

Indirect effects are calculated based on the product of the two path coefficients that link an exogenous independent variable to an outcome variable via a mediating variable. A mediating effect can be said to exist when this indirect relationship is different from zero at statistically significant levels. Stata estimated the indirect effects of vertical interpersonal, horizontal interpersonal, and inter-work group collaboration on work motivation via role ambiguity at 0.190, 0.130, and 0.163 respectively (standardized coefficients, all significant at $p < 0.001$). These statistics provide support for Hypotheses 3a, 3b, and 3c, and suggest that reduced role ambiguity functions as a key mechanism linking collaboration to work motivation. However, inter-work unit collaboration, unlike the other two collaboration variables, also had a statistically significant (negative) direct relationship with work motivation. In this case, it is also relevant to examine the total effect of the relationship, which is calculated by summing indirect and direct effects. The total effect of inter-work unit collaboration on work motivation thus turns out to be a more modest 0.080 ($p < 0.001$). This statistic suggests that, while still an important factor in shaping role ambiguity, the total impact of inter-work unit collaboration on work motivation is significantly less than that of either vertical interpersonal or horizontal interpersonal collaboration. This distinction is given further consideration in the next section.

Finally, it is noted here that both demographic variables (not shown in Figure 2) were also found to have relatively small but statistically significant effects on the two endogenous variables. Agency tenure was negatively related to role

ambiguity with a coefficient of -0.048 , but the variable was also negatively related to work motivation (-0.099). Second, compared to their male counterparts, female respondents reported lower levels of role ambiguity (-0.048) and higher work motivation (0.035). It is noted, however, that these effects are small and may therefore not be detected in smaller samples. As such, it should be kept in mind that these results may have less practical relevance than the collaboration variables for work motivation and role ambiguity.

Discussion and Conclusion

The improvement of public-sector organizational performance is an evergreen theme of public administration research. One approach to this objective has been to focus on individual-level motivation and examine the role of human resource strategies, such as performance appraisal, enhanced discretion, and performance-based rewards (Hood, 1991; Ingraham, 1993; Radin, 2000). In contrast, others have pointed out that it is necessary also to address higher-level, systemic coordination problems, as evidenced by the “smokestacks and silos” of government (Roberts, 2011, p. 677). If fostering intra-organizational collaboration can address both of these levels simultaneously by enhancing employee work motivation and producing tangible benefits for organizations in the form of improved coordination and performance, facilitating this type of behavior may be a valuable strategy for public managers. The results of the present study provide some support for this position.

Before discussing the results and the contribution of this study in more detail, some limitations of the analysis should be noted. First, while a series of CFAs indicated that the proposed 5-factor structure fit the data well, nevertheless the use of single-source, cross-sectional data has the limitation that the proposed causal relationships between variables cannot be formally demonstrated. For instance, while research typically treats role ambiguity as an antecedent to affective or cognitive states such as commitment (Boardman & Sundquist, 2009), others have suggested that highly committed employees may more easily attach meaning to their work, which implies that low levels of role ambiguity may be an outcome rather than a cause of work motivation or other positive attitudes (Irving & Coleman, 2003). Alternatively, given that ambiguous information itself hinders knowledge sharing and transfer (van Wijk, Jansen, & Lyles, 2008), individual-level role ambiguity may affect an employee’s ability to collaborate effectively. Consequently, while the ordering of the relationships in this study are theoretically consistent and represent plausible causal paths, future research that incorporates a temporal component should be used to further verify the results. Second, as noted in the measurements section, the FEVS was not developed to test the hypotheses proposed in this research. While the measurements were chosen based

on their approximation to dimensions of the concepts as previously discussed in the literature, it is noted here that these have not been formally validated. This caveat should be kept in mind when evaluating the results.

With these limitations in mind, it is possible to discuss the results of the analysis, which suggest that intra-organizational collaboration enhances the work motivation of frontline employees primarily by reducing role ambiguity. This result has both theoretical and practical significance for public management. First, in this study, collaboration was framed as a mechanism for orienting and coordinating collective effort, and was contrasted with more bureaucratic mechanisms intended to serve the same function. Some research suggests that managerial reliance on bureaucratic mechanisms of control comes as a response to the complex and ambiguous organizational goals to which public organizations are particularly susceptible (Pandey & Wright, 2006; Stazyk et al., 2011). However, as Pandey and Wright (2006) note, if environmental complexity encourages managers to turn to bureaucratic tools in managing their organizations, “ironically, the measures that may be intended to increase control in the presence of organizational goal ambiguity may do so at the cost of role clarity” (p. 518). In addition to underscoring the importance of clear objectives and expectations at the individual level in the production of work motivation, as well as the contextually dependent nature of the former (Jex & Gudanowski, 1992; Wright, 2004, 2007), the results of the present study suggest that enhancing the collaborative climate of an organization may be a viable option for public managers seeking to address organizational goal ambiguity while maintaining (and even enhancing) the role clarity and motivation of frontline employees.

Second, in addition to these general remarks, the study also found that while reduced role ambiguity mediates the relationship between work motivation and all three types of collaboration, inter-work unit collaboration was found to be distinct in that not only was its relationship with work motivation partially rather than fully mediated, but its direct effect was negative. One explanation of this negative direct effect may be the level of goal difficulty associated with inter-work unit collaboration as compared to the other two types of collaboration. Some literature suggests that inter-work unit collaboration is potentially the most difficult form of intra-organizational collaboration, given the fundamental differences in goals, incentives, and communication styles that characterize individual work units. As Bronkhorst et al. (2013, p. 4) point out, job goals enhance work motivation if they are “challenging but not too difficult,” and inter-work unit collaboration may elevate the difficulty of job goals above this threshold. Whitford et al.’s (2010) analysis suggests that inter-work unit collaboration may have a nonlinear relationship with organizational performance, such that beyond a point the benefits of collaborating across work units turn negative. Given the mixture of positive and negative effects uncovered in the present

study, a similar relationship may also hold at the individual level between inter-work unit collaboration and motivation. Future studies addressing intra-organizational collaboration may focus further on the potential distinctiveness of inter-work group collaboration in order to determine whether its unique qualities have implications for performance and motivation.

Finally, while the relationship between collaboration and work motivation uncovered in this study suggests that enhancing collaboration in public organizations can have positive effects for employees, fostering successful collaboration itself faces substantial challenges. Though scholars have largely written of collaboration as a positive phenomenon, the process can also be “a messy, contradictory, dynamic process that is defined by multiple viewpoints and unintended outcomes” (Thomson & Perry, 2006, p. 23). These remarks describe inter-organizational collaboration, but they are relevant also at the intra-organizational level (see also Lawson, 2004). For example, the success of vertical interpersonal collaboration requires a willingness on the part of supervisors (at least temporarily) to suspend to some extent the authority afforded them through their formal rank, which may carry with it certain risks and accountability problems. Professional norms can also differ considerably at different hierarchical strata, undermining rather than strengthening collaboration and coordination between levels (Kettl, 2006; Lipsky, 1980). In contrast, it is precisely those in the same work unit who may be in direct competition with one another for rewards, promotions, and favor from their superiors. This structural interpersonal factor can undermine intentions to help coworkers (Campbell, Lee, & Im, 2015), and may also have implications for horizontal interpersonal collaboration. Inter-work unit collaboration faces an alternative set of challenges due to the diversity of individuals encountered outside of the primary work unit, each of whom has different accountabilities, terminologies, incentives, professional values, and goals (Srivastava & Banaji, 2011; Tjosvold, 1988). In public organizations, such groups may even be accountable to different political leaders (Whitford et al., 2010). To address these challenges and secure the benefits of collaboration that this study implies, future research should explore not only the individual- and organizational-level effects of intra-organizational collaboration, but also the conditions, both managerial and organizational, that foster and sustain effective collaboration.

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Note

1. At the same time, the evidence for a relationship between PSM, job performance, and relevant job attitudes is compelling (Alonso & Lewis, 2001; Bright, 2007; Campbell & Im, 2015b). Some scholars have suggested that PSM is itself the outcome of organizational phenomena (Moynihan & Pandey, 2007; Wright, Moynihan, & Pandey, 2012). In public organizations, work motivation may thus be closely linked with PSM, a possibility that is here noted, given that most of the public administration research on motivation has focused on PSM rather than work motivation.

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