Donald P. Moynihan
University of Wisconsin
Noel Landuyt
University of Texas

How Do Public Organizations Learn? Bridging Cultural and Structural Perspectives

New Ideas for Improving Public Administration

How do public organizations learn? The organizational learning literature suggests distinct cultural and structural routes to learning. However, such categorizations oversimplify. Leaders seeking to foster learning should recognize that most relevant organizational variables combine structural and cultural aspects, which are mutually dependent on one another. The strongest influences are the existence of work groups that are purpose driven and incorporate the views of all members, including dissenting views. Such learning forums can be fostered through formal requirements, but they need appropriate cultural characteristics to succeed. Mission orientation, decision authority, information systems, and resource adequacy are also positively related to improved organizational learning.

Many of the criticisms leveled at public organizations imply a failure to use information and experience to make better decisions—in short, a failure of organizational learning. There is relatively little research done on organizational learning in the public sector. This is surprising, because the concept of organizational learning—that organizations can improve if organizational actors identify and use information to improve actions—is the key assumption that underpins much of contemporary public management reform, such as total quality management, reengineering, benchmarking, performance management, and performance budgeting.

This article attempts to go beyond the question, can public sector organizations learn? (Barrados and Mayne 2003). Generally, those who pose this question accept that public organizations can and should learn. Instead, we ask, *how* do public organizations learn? Existing empirical research relies largely on case studies, which have been invaluable in identifying examples of learning and in suggesting the characteristics of learning organizations. But the question of how learning can be engineered remains in dispute. The debate falls essentially along two lines, explored in the next section of the article. One approach argues that learning is something that emerges from the culture of the organization. By contrast, structural proponents argue that the cultural viewpoint underestimates the extent to which formal procedures can be used to foster learning.

This article attempts to go beyond the question, can public sector organizations learn?. . . . Generally, those who pose this question accept that public organizations can and should learn. Instead, we ask, *how* do public organizations learn?

This article uses a sample of Texas state employees to test which variables foster organizational learning. There have been few tests of the antecedents of learning using large-scale quantitative data sets (Vince, Sutcliffe, and Olivera 2002), particularly in public settings. This may be because a survey approach is not adept at identifying processes by which organizations store knowledge. However, it does allow us to understand what factors are associated with individual perceptions of whether learning is occurring in the workplace.

The findings suggest that both structural and cultural approaches are important, and are intertwined with one another to a degree that undercuts the claim that they are distinct approaches to learning. Many of the variables that explain learning clearly involve both structure and culture. While the dichotomy of structure versus culture is heuristically appealing, it obfuscates a messier reality. We argue that bridging the cultural and structural perspectives requires treating them as connected and interdependent factors. To make this argument clearer, we frame our findings using assumptions of structuration theory (Giddens 1984), which treats structure and culture as part of the broader social forces that enable and constrain social action, but are, in turn, reshaped by human agency. This suggests the possibilities for leaders to foster

Donald P. Moynihan is an associate professor and Romines Fellow in the La Follette School of Public Affairs, University of Wisconsin–Madison. His research examines the application of organization theory to public management issues such as administrative reform, performance management, and employee behavior. His book *The Dynamics of Performance Management* won the 2009 Academy of Management award for best public and nonprofit book.
E-mail: dmoynihan@lafollette.wisc.edu

Noel Landuyt is a research associate and lecturer at the University of Texas at Austin in the Center for Social Work Research. He is also the director of the Institute for Organizational Excellence.
E-mail: soe@uts.cc.utexas.edu

learning, and we consider the practical implications of our findings before we conclude.

Structural and Cultural Approaches to Learning

Organizational learning comes from the ability of organizational actors to relate experience and information to routines and problems (Argyris and Schön 1996, 16; Mahler 1997, 519). We follow Berends, Boersma, and Weggeman's definition of organizational learning as "the development of knowledge held by organizational members, that is being accepted as knowledge and is applicable in organizational activities, therewith implying a (potential) change in those activities" (2003, 1042). Therefore, we treat learning in terms of individual perceptions of the deployment of knowledge in a group setting.

A tension in the organizational learning literature is whether learning is fostered by culture or structure. Cook and Yanow (1993) propose what they describe as a cultural perspective on learning, where learning derives from the intersubjective meaning experienced by organizational actors and is reflected largely in tacit knowledge rather than explicitly considered decisions. While Cook and Yanow's approach seeks to distance itself from mainstream organizational learning, the emphasis on culture as critical to learning is not a dramatic break. The most influential writings on organizational learning also assume that learning is facilitated through shared norms, and that some cultures will be more conducive to learning than others. For instance, Senge (1990) argues that learning is based on shared experiences, norms, and understandings that foster intelligent behavior.

What cultural attributes foster or discourage learning? Characteristics of a learning culture include high employee empowerment, participation, and organizational openness (Argyris and Schön 1996; Fiol and Lyles 1985; Hult et al. 2000). On the other hand, defensive norms and the existence of taboo subjects weaken the capacity to learn. Overcoming defensiveness depends on a high measure of trust among employees and an understanding that an acknowledgment of error will not be used for punitive purposes. Once a nonpunitive environment of inquiry is established, employees are expected to consistently seek new approaches to provide better services. Cook and Yanow (1993) do not disagree with such assertions, but go further—culture does not just support learning, it is the primary means through which learning is transferred. A true study of organizational learning, therefore, focuses on collective meaning rather than individual learning (Yanow 2000).

A structural viewpoint, represented most clearly by Lipshitz, Popper, and Oz, complains that the organizational learning literature "offers relatively few treatments of the problem of how to build learning organizations" (1996, 301). The attributes that make culture an explanatory variable—its embeddedness in all aspects of organizational life—also make culture a difficult constraint to change. The structural criticism of mainstream organizational learning is not that culture is irrelevant, but that too little attention has been given to more immediate formal mechanisms that can foster organizational learning.

The structural approach is sharper in its criticism of the explicitly cultural perspective on learning and argues that authors such as Cook and Yanow exclude the role of individual cognition. Structuralists agree with Simon, who claims that "all learning takes place inside individual human heads; an organization learns in only two ways: a) the learning of its members, or b) by ingesting new members who have knowledge the organization previously didn't have" (1991, 125). Simon leaves open the question of how such an individual's knowledge becomes organizational. For structuralists, therefore, the key challenge for organizational learning is not to study the intersubjective meanings of individuals, but to study the structural procedures by which individual learning is acquired and utilized for organizational purposes. Lipshitz, Popper, and Oz (1996) describe such procedures as organizational learning mechanisms (OLMs). From the structuralist standpoint, OLMs provide a necessary (though not sufficient) basis for organizational learning (Lipshitz, Popper, and Friedman 2002).

A central point of this article is that an unquestioning acceptance of the cultural/structural dichotomy can lead to the exclusion of reality in the name of parsimony. Many of the features of organizational life—including variables that affect learning—simultaneously feature both cultural and structural components. Scholarly efforts that attempt to divide all of the antecedents of learning into structural or cultural variables will misdiagnose the causal mechanisms of learning by underestimating the importance of culture to what are classified as structural variables, and the importance of structure to variables deemed to be cultural.

Scholarly efforts that attempt to divide all of the antecedents of learning into structural or cultural variables will misdiagnose the causal mechanisms of learning by underestimating the importance of culture to what are classified as structural variables, and the importance of structure to variables deemed to be cultural.

Our model is presented in figure 1. Some variables, such as information systems and resources, reflect largely structural influences on learning. However, other variables demonstrate the lack of a clear distinction between structure and culture. Formal rules can try to establish a clear understanding of purpose and empower managers, but mission orientation and patterns of decision authority also rely on complementary cultural norms. Learning forums can be created by formal rules, but only the appropriate cultural traits, such as a willingness to acknowledge error and entertain the views of others, can ensure the success of such forums.

Resources

Resources are a constraint formally created by actors outside the public organization, and so they can be considered a structural variable. We hypothesize that when an organization has adequate

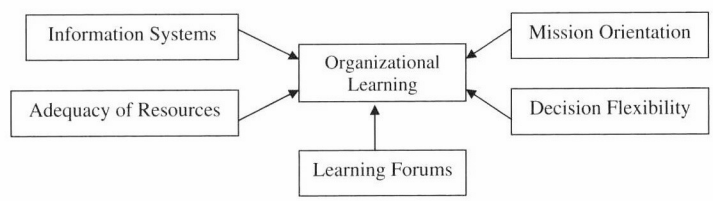

Figure 1 A Structural-Cultural Model of Organizational Learning

resources, it is more likely to learn. This runs contrary to the "necessity is the mother of invention" argument, which suggests that tight budgets will force organizations to come up with more innovative approaches. But agencies that are consistently underfunded are likely to have already wrung out any inefficiencies. Such organizations are in a reactive situation and focus on coping with the problems created by low resources and finding ways to increase the flow of resources. When organizations have some measure of organizational slack, they are more likely to be able to think proactively, and devote specialized resources and time to learning. Both quantitative (Askim, Johnsen, and Christophersen 2008; De Lancer Julnes and Holzer 2001) and qualitative (Berends, Boersma, and Weggeman 2003; Moynihan 2008) research that examines the link between resources and learning supports this claim.

H_1: Adequacy of resources is positively related to organizational learning.

Information Systems

What do OLMs as a structural approach to learning actually look like? Lipshitz, Popper, and Oz describe OLMs as "institutionalized structural and procedural arrangements that allow organizations to systematically collect, analyze, store, disseminate, and use information that is relevant to the effectiveness of the organization" (1996, 293). In applying the learning model to the public setting, Moynihan (2005) argues that performance information systems that collect, store, and disseminate information represent a common OLM in the public sector.

Performance information systems often fail to generate valid, legitimate, and functional performance information (Bouckaert 1993), or fail to distribute this information in a timely fashion to the right audience. These are not modest problems. A formal requirement for a performance information system is a poor guarantee of learning. For example, Argyris and Kaplan (1994) describe how the introduction of activity-based costing systems had a weak impact on learning. This makes testing the impact of information systems difficult. If one were to test the relationship between the existence of a performance information system and learning, and find no correlation, the interpretation could be either that (1) the information system does not matter to learning, or (2) the information system was not effective. To eliminate the latter interpretation from our model, we measure effective information systems, that is, information systems that appear to meet the basic criteria of collecting and diffusing relevant information in a timely fashion to the target users.

H_2: Effective information systems are positively related to organizational learning.

Mission Orientation

Relative to performance information systems, the employee's mission orientation—their understanding of the mission, vision, goals of the organization—is a more cultural aspect of performance management. A mission orientation might be the product of structures of strategic planning and communication, but it also reflects the compatibility of an organizational culture with mission and goals. When a mission-based culture exists, employee behavior is guided by shared norms and assumptions about the organizational purpose. Mission orientation overlaps with two aspects of Senge's (1990) model of learning organizations. The first is building a shared vision, where employees become committed and align their actions to the organizational vision. The second is systems thinking. Senge argues that if employees understand the broader system of which they are a part, they are in a stronger position to place their actions in this broader context, and to learn in a way that contributes to the whole. If individuals perceive a high measure of ambiguity in their environment, this will frustrate systems thinking and make learning more difficult. Mahler (1997) suggests that when organizations deal with a high measure of uncertainty, learning is limited. When employees understand the mission and do not face goal ambiguity, they are more likely to engage in learning (Kaplan and Norton 1996).

H_3: A mission orientation is positively related to organizational learning.

Decision Flexibility

Recent public management reform has called for empowering employees to make management decisions, on the assumption that the employees closest to the work best understand how to foster improvement (Moynihan 2008). But a mismatch between knowledge and authority can affect learning. Operational staff with the time, interest, and expertise to make informed judgments may lack the authority to make the appropriate changes, while senior managers or elected officials with authority are likely to lack the motivation and operational expertise to consider specific processes. As a result, information is likely to remain unused, potential learning opportunities untaken, and ineffective organizational processes unchanged.

Decision flexibility allows operators to participate in decision making and a chance to link learning with decisions. One of the major barriers to learning is when teams "lack the power to act in the domains about which they are learning" (Senge 199, xvii). Popper and Lipshitz (1998) recommend providing employees with "elbow room" to consider alternatives and experiment. Schulz (2001) has found that work units with more autonomy report higher levels of learning.

Decision flexibility has both structural and cultural components. An excellent illustration comes from reform efforts at the federal level during the 1990s. At a time when the federal government was trying to provide agencies with greater flexibility through formal grants of authority and eliminating rules, Ban (1995) found that organizational culture shaped agencies' willingness to exert flexibility and work around formal constraints. Subsequent empirical work has provided additional evidence on the cultural aspects of flexibility, showing that organizational culture interacts with perception of rule constraints to affect the performance of agencies (Pandey, Coursey, and Moynihan 2007).

H_4: Decision flexibility is positively related to organizational learning.

Learning Forums

While performance management reforms created OLMs to collect, store, and disseminate data, they have generally neglected learning

forums, that is, organizational routines in which employees seek to examine and discuss information and consider what it implies for subsequent action (Moynihan 2005). Learning forums ideally occur on a regular basis, are based on a dialogue between key actors, include experiential and hard data, and are focused on improving the organization.

Learning forums represent a marriage of the cultural and structural approaches. Such routines are likely to be formally established. Pisano, Bohmer, and Edmondson (2001) find that firms with formal procedures for learning are more effective learners. However, the nature and efficacy of the dialogue in such forums will depend greatly on the cultural attributes of the organization. Learning forums work best if they occur within a culture that is purpose driven, encourages the open sharing of information, supports the presentation of different perspectives, and examines errors to solve problems rather than to allocate blame (Moynihan 2005). The literature on organizational learning suggests that confrontational uses of data lead to defensive reactions rather than learning, and that learning forums that establish collegiality and an equal footing for members are likely to overcome defensiveness and foster information sharing.

Learning forums can take a variety of forms, such as strategic planning routines, after-action reviews, benchmarking processes, or other routines in which data is examined. In this article, we examine work groups as learning forums. This approach is consistent with Kaplan and Norton's (1996, 252) argument that learning is fostered by goal-based problem solving among teams who use information to intelligently respond to organizational conditions, and Yanow's (2000) recommendation to study communities of practice. We looked for team environments with the ideal characteristics of learning forums, specifically those in which workers were likely to take into account the opinions of others, work groups were given feedback on performance, and work groups focused on organizational improvement. However, the potential cohesiveness arising from these qualities can lead to groupthink in teams "when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action" (Janis 1982, 9). Therefore, we also looked for groups that demonstrated a cultural value of inquiry, implying "a willingness to accept a degree of uncertainty and to suspend judgment until a satisfactory understanding is achieved and is similar to the value of intellectual curiosity (questioning the status quo)" (Lipshitz, Popper, and Friedman 2002, 85).

H_5: Work groups with the characteristics of learning forums are positively related to organizational learning.

Data and Methods

The data were obtained from a 2004 survey of Texas State agencies, the Survey of Organizational Excellence. A total of 62,628 employees were surveyed in 53 different state agencies, resulting in 34,668 usable responses, a response rate of more than 55 percent. This confidential survey was administered primarily by e-mail but, when necessary, employees were provided a paper version of the survey. Additional information about the survey, including the agencies surveyed and demographic information, can be found in Moynihan and Landuyt (2008, 127–29). The appendix lists the items used to construct the variables, as well as descriptive data for the variables and Cronbach's alphas for indexes.

The data were obtained from a 2004 survey of Texas State agencies, the Survey of Organizational Excellence. A total of 62,628 employees were surveyed in 53 different state agencies, resulting in 34,668 usable responses, a response rate of more than 55 percent.

We include controls for gender, age, minority status, length of service with the organization, supervisory status, and education. We employed a fixed-effects approach, running an ordinary least squares regression while controlling for agency-level effects.[1] None of these controls proved to be significant or altered the nature of the relationship between the independent and dependent variables.

Measuring Learning

Learning is a variable plagued by measurement difficulties. Therefore, we discuss our measurement of organizational learning in particular detail. A strict cultural approach argues that learning largely involves context-specific tacit knowledge that is impossible to measure, but is best studied from an interpretative standpoint (Yanow 2000). Such research uses case studies to study the collective rather than the individual, by examining the cultural artifacts, social practices, and language through which norms are communicated. Case research also dominates more mainstream learning research, and has been used to impute learning across time by developing limited historical narratives. But the case approach raises issues of generalizability and imprecision in the measurement of variables—one researcher's perception of learning may vary from that of another. Qualitative research may also have led to an overemphasis on cultural attributes. As researchers see learning accompanied by certain cultural traits, they assume a causal relationship, but such relationships have been largely untested using quantitative methods. Quantitative research on learning has increased, largely in a private sector context, often focusing on strategic issues related to joint ventures and alliances (Bapuji and Crossan 2004). Efforts to measure learning have generally relied on perceptual measures from surveys (e.g., Askim, Johnsen, and Christophersen 2008; Schulz 2001).

Our approach assumes that individual learning is captured and used for organizational purposes. The role of the individual is central to most treatments of learning (Fiol and Lyles 1985), but the struggle has been in accounting for how the organization captures individual knowledge. We rely on close-ended individual responses, and therefore cannot capture examples of collective learning in the way that an interpretative approach would. But while we survey individuals, our questions are not primarily related to individual incentives and individual cognitive processes, but seek to probe the individual's perception of group action. The survey instructions ask the respondent to answer "from the perspective of your immediate workplace." The question structure reinforces the emphasis on group, and only the mission orientation variable and demographic measures ask the respondent to refer to his or her individual situation.

Our dependent variable is a scale of different learning items that share the assumption that groups of employees use knowledge to make decisions that benefit the organization. Consistent with Barrados and Mayne (2003), we include a measure of experiential learning

from errors ("We are encouraged to learn from our mistakes"). We also incorporate a customer-service perspective on learning that is consistent with Tippins and Sohi (2003) ("We use feedback from those we serve to improve performance"). Our third item is a general measure of learning based on information ("We integrate information and act intelligently on that information"). The data come from the Organizational Excellence Group, which collected the survey and provided aggregate summaries of the data to the organization. The use of these external evaluations by agencies is an indicator of whether the organization will make use of relevant information. Therefore, the final part of our index asks respondents to agree or disagree with the statement, "I believe we will use the information from this survey to improve our performance."

Results and Discussion

The results of the regression are presented in table 1. The results suggest strong support for the model. All of the independent variables have statistically significant relationships with the dependent variable and in the direction hypothesized.

The large sample size tends to inflate even relatively trivial (though real) relationships between the independent and dependent variables into statistically significant relationships. Therefore, in interpreting the individual independent variables, it is helpful to also consider the size of the relative impact of the regression coefficients. All of the theoretical variables in the survey are measured on a 1–5 scale and index items have been converted to a 1–5 scale, so examining the coefficients provides us with a transparent basis for comparing the relative strength of the theoretical variables (the individual control variables have not been adjusted).

The most influential independent variable is the work groups as learning forums. A one-unit increase in this variable is associated with approximately a .42 increase in the dependent variable. The more that work groups take on the characteristics of learning forums—inclusiveness and dialogue, consideration of performance information, a desire to foster improvement—the greater the sense of organizational learning among respondents. The information systems variable is the next most influential variable, with a one-unit increase in this measure leading to a .15 increase in the dependent variable. The difference in the size of the effects between learning forums and information systems variables suggests that while both are important, public organizations would see a greater payoff if they devoted as much energy to creating learning forums as they have done to creating information systems.

Table 1 OLS Regression on Organizational Learning Controlling for Agency-Level Effects

Variables	Coefficient	Standard error
Constant	.843***	.135
Information systems	.147***	.003
Mission orientation	.137***	.004
Decision flexibility	.070***	.003
Learning forums	.419***	.005
Adequacy of resources	.078***	.003
Control Variables		
Age	.014***	.003
Years with organization	−.017***	.002
Supervisor	.020**	.0071
Education	−.015***	.002
Female	.049***	.006
Minority	.017**	.006

Note: Agency-specific effects are included but not reported.
N = 24,614.
*** p < .001; **p < .01 (two tailed).
Adjusted R^2 = .702; F = 938.42.

The mission orientation variable was the next most influential. A one-unit increase in understanding of the mission, values, and strategic plan of the organization fostered a .14 increase in our measure of organizational learning. Are the findings on mission orientation and information systems a vindication for the performance management movement? Both variables have a statistically significant relationship with learning. However, the relationship must be taken in the context of how the independent variables were measured. We measured with the assumption that information systems were working as they should be, with the right people receiving the right information at the right time. This is not the same thing as simply having an information system. We measured whether employees clearly understood the organization's mission, vision, and strategies. This is not the same thing as producing a strategic plan. In both instances, there are considerable implementation barriers. But if public organizations can overcome those barriers, information systems and a mission orientation can foster organizational learning.

Decision flexibility also has a significant relationship with learning, but the variable has lower explanatory power. A one-unit increase in the perception that managers have decision authority increases the measure of organizational learning by .07. Along with resources, this is the weakest impact of any of the variables in the model. Why does flexibility not have a stronger influence on learning? A possible explanation comes from case evidence on the use of performance information in state government (Moynihan 2008). Existing flexibility often allows for many of the changes that managers wish to pursue. So although a sense of greater authority is helpful, learning can occur under existing authority. In addition, employees who are not used to additional authority may not have a clear idea of how to use it.

The impact of resources is also significant, but more modest. A one-unit increase in perceived adequacy of resources is predicted to lead to a .08 increase in the measure of organizational learning. Clearly, resources matter. The findings suggest that organizational slack fosters learning. In part, this may be because slack allows organizations to be less reactive and to pursue deliberate change. In part, it may be because organizational slack enables the provision of financial resources and staff time to support learning forums.

Finally, we briefly note the relevance of the control variables. While most of the variables are statistically significant, none approaches the explanatory power of any of any of the theoretical variables tested. We find that age is positively related to perceptions of learning, but length of state service is not. This finding is consistent with other results showing that older public sector employees tend to have positive job attitudes, but that those who have been in the same organization or position for a long time (controlling for age)

tend to be less engaged (Moynihan and Pandey 2008; Traut, Larsen, and Feimer 2000). The impact of tenure may cause employees to negatively modify their expectations toward organizational activity, so that they are more likely to be critical of and less involved in organizational learning efforts. We find that supervisors, females, and minorities are more likely to perceive evidence of learning, although the impact of supervisory and minority status is relatively small and significant only at the .01 level. Interestingly, level of education is negatively related to perceptions of organizational learning. This may be because those with more educational experience have higher standards for what constitutes learning. A complementary explanation is that those with greater education begin with a higher level of knowledge, and so their organizational experiences are less likely to engender new knowledge.

From Dualism to Duality: Bridging Structure and Culture

One conclusion that emerges from our findings is the difficulty of separating structural and cultural approaches to learning. The theoretical variables, with the exception of information systems and resources, have both cultural and structural attributes. Therefore, culture and structure intertwine to form expectations and shape behavior. This suggests that those seeking to foster organizational learning can pursue different avenues, but ideally should seek to ensure that structural approaches mesh with cultural approaches. While culture and structure are useful inasmuch as they categorize different approaches to organizational life, such categorizations can become too constraining if viewed as alternate approaches to learning.

What is required, therefore, is an ability to rethink culture and structure, recognizing them as broad and connected norms that shape behavior. Structuration theory offers a suitable theoretical framing device. Structuration theory takes seemingly opposed dualisms in social theory and reconceptualizes them as mutually reinforcing dualities (Giddens 1984). Structuration theory uses the term "structure" to capture what traditional organizational theory would treat as both structure and culture, including norms, interpretations, rules, and resources. Consistent with the cultural approach to learning, structuration theory argues that norms and interpretations shape behavior. Consistent with a structural approach to learning, structuration theory points to the importance of rules and resources to social action.

What are the implications of structuration theory in helping to bridge cultural and structural perspectives? Not only does structuration theory offer a way to reconceptualize the dualism of structure and culture into one overarching understanding of social institutions, it also proposes a role for human agency and, therefore, change. A central tenet of structuration is the recursive nature of social action. Social action both reflects and reconstitutes structure: structure influences agents, agents influence structure, and so on. Through its emphasis on constant reproduction, structuration theory views individuals as more than the passive recipients of organizational influence, making them agents capable of reconstituting the broader social norms.

The question that motivates this article is, how do public organizations learn? The answer moves us beyond the cultural-structural debate, and instead focuses on how human agency can reshape broader social norms that foster learning. Learning practices are recursive, shaped and reshaped by norms, rules, and resources (Berends, Boersma, and Weggeman 2003). For example, learning forums can be seen as a fluid social practice through which organizational learning can be created and restructured (Berends, Boersma, and Weggeman 2003, 1053; Nonaka and Toyama 2003). Individuals can redefine relevant structural properties through social action, thereby re-creating the relevant context for learning. The following section reviews the potential for practitioners to affect the learning variables tested in our model.

Practical Implications for Leadership

What are the practical implications of our model for organizational learning? We look in particular at the role of leadership, given that leadership can explain variation in learning across similar organizations (Moynihan 2005; Lipshitz and Popper 2000), and in the same organization across time (Berends, Boersma, and Weggeman 2003; Popper and Lipshitz 2000). A structuration perspective suggests that it is not simply the beliefs of leaders that matter, but how these beliefs motivate social actions to reshape learning, while treating structure and culture as mutually dependent forces rather than as alternatives.

How do leaders create norms that support learning? Leaders can claim a wide variety of priorities, but employees look to a leader's actions—specifically, how leaders spend their time, attention, and resources—to infer where the real priorities lie (Popper and Lipshitz 2000). For example, Askim, Johnsen, and Christophersen (2008) find that when leaders spend time participating in benchmarking processes, these learning forums are more likely to influence decisions. Offering actual or symbolic rewards for behavior consistent with desired cultural values positively reinforces such values. Leaders can also direct organizational resources to OLMs, including financial resources, specialized staff, and general staff time. These actions use cultural and structural organizational levers to help establish norms consistent with learning.

How do leaders create norms that support learning? Leaders can claim a wide variety of priorities, but employees look to a leader's actions—specifically, how leaders spend their time, attention, and resources—to infer where the real priorities lie.

Even with structural OLMs such as information systems, such norms are important. For most organizations, information systems are already in place, and so the leadership challenge is to ensure that such systems are truly useful, providing relevant information to the appropriate decision makers in a timely fashion. The more leaders devote time, attention, and resources to make clear that information systems are central to important decisions, the more likely it becomes that employees will use them (Moynihan 2005; Moynihan and Ingraham 2004).

Culture matters to factors such as decision flexibility and mission orientation, and leaders can reshape these factors by infusing the organization with supportive values (Schein 1992). Leaders can encourage learning by formally decentralizing decision authority to

those closest to the decisions. But such patterns of authority diffusion are also determined by cultural values that support empowered decision making over rule adherence (Ban 1995). Communications systems and strategic planning routines are structural mechanisms that can better explain the purpose of the organization, thereby fostering a mission orientation. But communication occurs beyond formal communication systems, and leaders can seek to shape the informal talk, symbols, and actions that form part of the organizational culture.

The duality of structure and culture is perhaps best illustrated by the example of learning forums. Learning forums are a form of OLM consistent with a structural approach, and a relatively straightforward piece of advice for leaders is to establish routines of information use. But what makes such routines effective is the cultural attributes of the group and the wider organization. In this article, we tested not the existence of learning forums, but the degree to which positive learning forum characteristics were present among work groups. Purpose-driven work groups that used information but also allowed rigorous debate were more likely to be associated with organizational learning. Such characteristics depend on a wider organizational culture that values learning, acknowledges error without provoking defensiveness, welcomes multiple perspectives, and focuses on the assumptions challenged and information assessed rather than the status of the individuals involved. Simply declaring that learning forums should take place without seeking to ensure that such attributes are in place would reflect a failure by leaders to recognize just how much structure depends on culture.

Conclusion

The research presented in this article advances our understanding of learning in public organizations in a number of ways. First, a methodological contribution: large-*N* quantitative methods are infrequently used to study organizational learning, especially in public settings. In part, this is because of the difficulty of measuring learning in a satisfactory way. It is worth noting that our methodological strategy results in a number of limitations. We have the general limitations of any survey-based research, including the potential for common source bias to affect the results. The data are cross-sectional, which makes it difficult to attribute causality to the results. There are also more particular concerns. We rely on data from a particular state government, which may have significant differences with other states and other levels of government. By relying on individual responses about group actions, we assume that the respondent is capable of relating their social environment. And any survey or quantitative analysis of learning will necessarily miss aspects of organizational learning that can be learned only through an interpretative approach and qualitative methodology (Yanow 2000). However, case research brings its own weaknesses, including imprecision in variable definition and difficulty in replication that limits the ability of researchers to develop cumulative contingent knowledge. The relative dominance of qualitative research on learning in the public sector setting provides additional relevance to our findings.

A second contribution of the article is to offer quantitative evidence that supports a range of variables. There are sound theoretical reasons, and in some cases qualitative evidence, why information systems, mission orientation, decision flexibility, and resource adequacy should support learning, but the findings offer another type of evidentiary support that they matter.

A third contribution is the strong support for the role of learning forums. The concept of learning forums is not as well established as the other variables tested here, and the relative influence of this variable marks it as potentially important for future investigation. The essential idea of learning forums—employees are given time and space to create a dialogue about what information means—is not limited to the work groups we investigate. Additional research could usefully examine how different types of learning forums matter in different decision settings. Such research might also consider trade-offs between learning forum values. For example, a strong emphasis on error tolerance may be at odds with a pursuit of public accountability.

The fourth major contribution of the article is the effort to bridge the cultural and structural divide. Different camps within organizational learning have argued for each approach, while sometimes acknowledging that the other is important to learning. We move beyond this division by pointing out that, in practice, key variables often incorporate both structural and cultural aspects. Structuration theory offers a useful frame for reconsidering how structure and culture matter, emphasizing overarching norms that shape behavior, and the role of human agency in reconstituting these norms. This implies that public actors looking to foster learning should understand the extent to which they are limited by past norms while finding ways to reshape these norms by leveraging both the structural *and* cultural aspects of their organization.

There is much additional research that can be done to answer the question of how public organizations learn. A complementary research question is whether such learning matters to performance.

There is much additional research that can be done to answer the question of how public organizations learn. A complementary research question is whether such learning matters to performance. The organizational learning literature could be broadly but accurately categorized as instrumental in its approach, in that it advocates the pursuit of learning to improve organizational capacity and performance. In case studies, it is possible to construct convincing narratives that link learning to organizational improvements, but such claims are difficult to generalize. Having presented a quantitative approach to measuring learning, a next logical step is to link learning to an indicator of public sector performance.

Notes

1. To determine whether ordinary least squares was the appropriate estimation technique, we examined our data for heteroscedasticity, influential data and multicollinearity. A histogram of the standardized residuals shows that they are normally distributed. A scatter plot illustrates that the errors are relatively constant (homoscedastic) and independent of one another. For the basic model that includes the theoretical variables and individual-level controls, but not agency level controls, multicollinearity does not appear to be a

serious problem. The condition index is 25.54, below a level that indicates serious collinearity (Belsely, Kuh, and Welsch 1980). The square roots of the variable inflation factors do not exceed 1.53 (for the work group variable), which again suggests acceptable levels of collinearity (Fox 1991). Once we add the agency-level controls, collinearity indicators rise above normally acceptable levels, but the addition of agency-level controls does not significantly alter the results of the a basic model that features just the theoretical and individual control variables. To further test the suitability of the ordinary least squares approach, we also ran an ordered logit version of the model, not provided in this article. The results were the same, including the relatively strong estimated effect of learning forums on learning. Given the greater ease that ordinary least squares offers for interpretation, we chose to use this approach.

References

Argyris, Chris, and Robert S. Kaplan. 1994. Implementing New Knowledge: The Case of Activity-Based Costing. *Accounting Horizons* 8(3): 83–105.

Argyris, Chris, and Donald Schön. 1996. *Organizational Learning: A Theory of Action Perspective.* 2nd ed. Reading, MA: Addison-Wesley.

Askim, Jostein, Åge Johnsen, and Knut-Andreas Christophersen. 2008. Factors behind Organizational Learning from Benchmarking: Experiences from Norwegian Municipal Benchmarking Networks. *Journal of Public Administration Research and Theory* 18(2): 297–320.

Ban, Carolyn. 1995. *How Do Public Managers Manage? Bureaucratic Constraints, Organizational Culture and the Potential for Reform.* San Francisco: Jossey-Bass.

Bapuji, Hari, and Mary Crossan. 2004. From Questions to Answers: Reviewing Organizational Learning Research. *Management Learning* 35(4): 397–417.

Barrados, Maria, and John Mayne. 2003. Can Public Sector Organizations Learn? *OECD Journal on Budgeting* 3(3): 87–104.

Belsely, David A., Edwin Kuh, and Roy E. Welsch. 1980. *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity.* New York: Wiley.

Berends, Hans, Kees Boersma, and Mathieu Weggeman. 2003. The Structuration of Organizational Leaning. *Human Relations* 56(9): 1035–56.

Bouckaert, Geert. 1993. Measurement and Meaningful Management. *Public Productivity and Management Review* 17(1): 31–43.

Cook, Scott D. N., and Devra Yanow. 1993. Culture and Organizational Learning. *Journal of Management Inquiry* 2(4): 373–90.

De Lancer Julnes, Patria, and Marc Holzer. 2001. Promoting the Utilization of Performance Measures in Public Organizations: An Empirical Study of Factors Affecting Adoption and Implementation. *Public Administration Review* 61(6): 693–708.

Fiol, C. Marlene, and Marjorie A. Lyles. 1985. Organizational Learning. *Academy of Management Review* 10(4): 803–13.

Fox, John. 1991. *Regression Diagnostics.* Newbury Park, CA: Sage Publications.

Giddens, Anthony. 1984. *The Constitution of Society: Outline of the Theory of Structuration.* Berkeley: University of California Press.

Hult, G. Tomas, Robert F. Hurley, Larry C. Giunipero, and Ernest L. Nichols. 2000. Organizational Learning in Global Purchasing: A Model and Test of Internal Users and Corporate Buyers. *Decision Sciences* 31(2): 293–325.

Janis, Irving L. 1982. *Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascoes.* Boston: Houghton Mifflin.

Kaplan, Robert S., and David P. Norton. 1996. *The Balanced Scorecard: Translating Strategy into Action.* Boston: Harvard Business School Press.

Lipshitz, Raanan, and Micha Popper. 2000. Organizational Learning in a Hospital. *Journal of Applied Behavioral Science* 36(3): 345–61.

Lipshitz, Raanan, Micha Popper, and Victor J. Friedman. 2002. A Multifacet Model of Organizational Learning. *Journal of Applied Behavioral Science* 38(1): 78–98.

Lipshitz, Raanan, Micha Popper, and Sasson Oz. 1996. Building Learning Organizations: The Design and Implementation of Organizational Learning Mechanisms. *Journal of Applied Behavioral Science* 32(3): 292–305.

Mahler, Julianne. 1997. Influences of Organizational Culture in Learning in Public Agencies. *Journal of Public Administration Research and Theory* 7(4): 519–40.

Moynihan, Donald P. 2005. Goal-Based Learning and the Future of Performance Management. *Public Administration Review* 65(2): 203–16.

———. 2008. *The Dynamics of Performance Management: Constructing Information and Reform.* Washington, DC: Georgetown University Press.

Moynihan, Donald P., and Patricia W. Ingraham. 2004. Integrative Leadership in the Public Sector: A Model of Performance Information Use. *Administration & Society* 36(4): 427–53.

Moynihan, Donald P., and Noel Landuyt. 2008. Explaining Turnover Intention in the Public Sector: Examining the Roles of Gender, Life Cycle and Loyalty. *Review of Public Personnel Administration* 28(2): 120–43.

Moynihan, Donald P., and Sanjay K. Pandey. 2008. The Ties That Bind: Social Networks, Value-Based Commitment and Turnover Intention. *Journal of Public Administration and Research Theory* 18(2): 205–27.

Nonaka, Ikujiro, and Ryoko Toyama. 2003. The Knowledge-Creating Theory Revisited: Knowledge Creation as a Synthesizing Process. *Knowledge Management Research and Practice* 1: 1–10.

Pandey, Sanjay K., David Coursey, and Donald P. Moynihan. 2007. Overcoming Barriers to Organizational Effectiveness and Bureaucratic Red Tape: A Multi-Method Study. *Public Performance and Management Review* 30(3): 371–400.

Pisano, Gary P., Richard M. J. Bohmer, and Amy C. Edmondson. 2001. Organizational Differences in Rates of Learning: Evidence from the Adoption of Minimally Invasive Cardiac Surgery. *Management Science* 47(6): 752–68.

Popper, Micha, and Raanan Lipshitz. 1998. Organizational Learning Mechanisms: A Structural and Cultural Approach to Organizational Learning. *Journal of Applied Behavioral Science* 34(2): 161–79.

———. 2000. Installing Mechanisms and Instilling Values: The Role of Leaders in Organizational Learning. *The Learning Organization* 7(3): 135–44.

Schein, Edgar. 1992. *Organizational Culture and Leadership.* 2nd ed. San Francisco: Jossey-Bass.

Schulz, Martin. 2001. The Uncertain Relevance of Newness: Organizational Learning and Knowledge Flows. *Academy of Management Journal* 44(4): 661–81.

Senge, Peter M. 1990. *The Fifth Discipline: The Art and Practice of the Learning Organization.* New York: Doubleday.

Simon, Herbert A. 1991. Bounded Rationality and Organizational Learning. *Organization Science* 2(1): 125–34.

Tippins, Michael J., and Ravipreet S. Sohi. 2003. IT Competency and Firm Performance: Is Organizational Learning a Missing Link? *Strategic Management Journal* 24(8): 745–61.

Traut, Carol Ann, Rick Larsen, and Steven H. Feimer. 2000. Hanging On or Fading Out: Job Satisfaction and the Long-Term Worker. *Public Personnel Management* 29(3): 343–52.

Vince, Russ, Kathleen M. Sutcliffe, and Fernando Olivera. 2002. Organizational Learning: New Directions. Special issue, *British Journal of Management* 13: S1–6.

Yanow, Devra. 2000. "Seeing" Organizational Learning: A Cultural View. *Organization* 7(2): 247–68.

Appendix: Measurement of Variables

Variables	Survey items
Learning (dependent)	We are encouraged to learn from our mistakes.
(Cronbach's alpha = .79)	We use feedback from those we serve to improve performance.
	We integrate information and act intelligently on that information.
	I believe we will use the information from this survey to improve our performance.
	Mean = 3.46; Standard deviation = .806
Information systems	The right information gets to the right people at the right time.
	Mean = 3.11; Standard deviation =1.07
Mission oriented	I have a good understanding of our mission, vision and strategic plan.
	Mean = 3.80; Standard deviation =.863
Decision flexibility	Decision making and control are given to employees doing the actual work.
	Mean = 3.03; Standard deviation =1.20
Learning forum	Work groups are trained to incorporate the opinions of each member.
(Cronbach's alpha = .89)	Work groups receive adequate feedback that helps improve their performance.
	Work groups are actively involved in making work processes more effective.
	People who challenge the status quo are valued.
	Mean = 3.05; Standard deviation = .939
Resources	We have adequate resources to do our job.
	Mean = 3.38; Standard deviation =1.07
Age	1 = 16-29; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60+
	Mean = 2.90; Standard deviation =1.046
Years with organization	1 = 0; 2 = 1-2; 3 = 3-5; 4 = 6-10; 5 = 11-15; 6 = 15+
	Mean = 4.00; Standard deviation =1.496
Supervisor	1 = supervisor; 0 = non-supervisor; Mean = .23; Standard deviation =.421
Education	1 = no GED; 2 = high school; 3 = some college; 4 = an associate degree; 5 = bachelors degree; 6 = master's degree; 7 = doctoral degree
	Mean = 4.11; Standard deviation =1.404
Female gender	1 = female; 0 = male; Mean = .67; Standard deviation =.468
Minority	1 = non-white; 0 = white; Mean = .44; Standard deviation =.497

All responses are based on a 1-5 scale unless otherwise noted: 1= strongly disagree, 2 = disagree, 3 = feel neutral, 4 = agree, 5 = strongly agree. Respondents also have the opportunity to choose "don't know/not applicable." Such responses are excluded from the scale. All indexes are converted to a 1-5 scale.