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How do Public Organizations Learn? Bridging Cultural and Structural Perspectives

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Forthcoming in *Public Administration Review*



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Bridging Cultural and Structural Perspectives**

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Abstract

This article presents a model of organizational learning, and tests this model based on a survey of Texas state employees. The organizational learning literature suggests distinct cultural and structural routes to learning. However, such categorizations tend to be simplistic. Leaders seeking to foster learning should recognize that most relevant organizational variables combine structural and cultural aspects, which are mutually dependent on one another. This is most clearly demonstrated by the variable that exerts the strongest influence in our model, 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 need appropriate cultural characteristics to succeed. We also find that mission-orientation, decision authority, information systems and resource adequacy are positively related to learning.

INTRODUCTION

Many of the criticisms leveled at public organizations imply a failure to use information and experience to make better decisions – in short, a failure in 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 of “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 by which formal procedures can be used to foster learning.

This article uses a sample of State of Texas employees to test which variables foster organizational learning. There have been few tests of the antecedents of learning using large-scale quantitative datasets (Vince, Sutcliffe and Oliveria 2002), particularly in public settings. This may be because a survey approach it 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 in our findings are variables that clearly involve both structure and culture. While the dichotomy of structure versus culture is heuristically appealing, it serves to obfuscate the messier reality of learning in organizations. The best example of the interconnection between culture and structure comes in our variable which measures learning forums. Learning forums are formal collective routines of information use, but it is the cultural characteristics of such forums that are the basis for their impact.

In discussing our results, we argue that bridging the cultural and structural perspectives requires treating them as intertwined and mutually dependent factors that shape social action. To make this argument clearer, we frame our findings using assumptions of structuration theory (Giddens 1984), which treats structure and culture as part of 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 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 (Arygris and Schön 1996, 16; Mahler 1997, 519). One tension in the field of organizational learning has been whether individuals or organizations learn. In this article, we follow Berends, Boersma and Weggeman's (2003, 1042) 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.” We therefore treat learning in terms of individual perceptions of the deployment of knowledge in a group setting. We further discuss the issue of where learning originates, and how it is measured in the data and methods section.

A second tension, is whether learning is fostered by culture or structure. Cook and Yanow (1993) criticized mainstream organizational learning research – which they described as the cognitive perspective – for assuming that organizational learning consists of learning by key individuals, and for treating the organization as if it had the cognitive abilities of an individual. Cook and Yanow argued the former was not truly *organizational* learning, while the latter fallaciously anthropomorphized the organization. They proposed what they described 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 the cultural approach sought to distance itself from mainstream organizational learning, the emphasis on culture as critical to learning was not itself 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 between employees and an understanding that an acknowledgment of error will not be used for punitive purposes. Once a non-punitive environment of inquiry is established, employees are expected to consistently seek new approaches to provide better services. Cook and Yanow (1993) did not disagree with such assertions, but went further – culture did not just support learning, it was the primary means through which learning was transferred. A true study of organizational learning therefore focused on collective meaning rather than individual learning (Yanow, 2000).

A structural viewpoint, represented most clearly by Lipshitz, Popper and Oz (1996, 301), complains that the organizational learning literature “offers relatively few treatments of the problem of how to build learning organizations”. 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 (1991, 125) 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.” Simon left 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.

Our model is presented in figure 1. Some variables, such as information systems and resources, reflect largely structural influences on learning. However, the 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 rely on complementary cultural norms of behavior. 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.

Insert figure 1 here

Information Systems

What do OLMs as a structural approach to learning actually look like? Lipshitz, Popper and Oz (1996, 293) 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.” In applying the learning model to the public setting, Moynihan (2005a) argued 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 therefore 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 and failed to disseminate to other parts of the organization. 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 a) the information system does not matter to learning, or b) the information system was not effective. To eliminate the latter interpretation from our model, we measure effective information systems, i.e. information systems which appear to meet the basic criteria of collecting and diffusing relevant information in a timely fashion to the target users. Respondents were asked to assess the degree to which “The right information gets to the right people at the right time.” Our first hypothesis is:

H1: Effective information systems are positively related to organizational learning.

Resources

Given resources are a constraint formally created by actors outside the public organization, it might be considered as a structural variable. We hypothesize that where an organization has

adequate 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. Where 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 forthcoming; de Lancer Julnes and Holzer 2001) and qualitative (Berend, Boersma and Weggeman 2003; Moynihan 2005b) research that examines the link between resources and learning supports this claim. To assess the respondent’s perception of resource adequacy, we asked them to agree or disagree with the statement “We have adequate resources to do our job.”

H2: Adequacy of resources is 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 less structured and more cultural aspect of performance management. A mission orientation might be considered the deliberate product of strategic planning and communication, but it also reflects the compatibility of an organizational culture with mission and goals. This is indicated by the concept of mission-based culture where the thoughts and actions of employees are guided by shared norms and assumptions about what the organization is pursuing (Rainey and Steinbauer 1999).

Mission orientation overlaps with two aspects Senge's (1990) model of learning organizations. The first is building a shared vision, where employees become committed to the organizational vision, leading them to align their actions to the broader 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 where organizations deal with a high measure of uncertainty, learning is limited. Lack of goal clarity prevents the organization from linking values to mission and reduces employee motivation (Locke and Latham 1990). Where employees understand the mission and do not face goal ambiguity, they are more likely to engage in learning (Norton and Kaplan 1990). To reflect this hypothesis, respondents were presented with the statement "I have a good understanding of our mission, vision and values."

H3: 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 high 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. Nicolini et al. (1997) argue that the degree of centralization shapes organizational learning. Schulz (2001) has found that work-units with more autonomy report higher levels of learning. Centralized structures reinforce past behaviors and make new learning more difficult, while decentralized structures encourage the assimilation of discovery and 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. Moreover, Thompson and Ingraham (1996) found that reform efforts were often stymied through informal efforts to reassert central control. 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). To measure decision flexibility, we asked respondents to agree or disagree with the following statement: “Decision-making and control are given to employees doing the actual work.”

H4: Decision flexibility is positively related to organizational learning

Learning Forums

Performance management reforms have created OLMs to collect, store, and disseminate data while giving almost no consideration to structuring routines of information use. Moynihan (2005a) argues for greater attention to learning forums, organizational routines where employees seek to examine and discuss information and consider what it implies for subsequent action. Learning forums ideally occur on a regular basis, are based on a dialogue of the actors involved, includes experiential and hard data, and are focused toward 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 Edmonson (2001) find that firms with formal procedures for learning are more effective learners. There are examples of structured learning forums in the public sector, usually in the context of performance management. Strategic planning routines are frequently mandated. At the federal level, the Office of Management and Budget uses the Program Assessment Rating Tool to engage in a discourse with agency officials about program performance, and many cities have adopted the “stat” model where high level officials routinely question operators on performance (Moynihan 2008).

However, the nature and efficacy of the dialogue in such forums will depend greatly on 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 allocate blame. The literature of 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 where 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. However, group projects can also be characterized by the dominance of one or a handful of key actors, unequal power relationships, lack of adequate information, and little attention to organizational improvement. Therefore, we looked for team environments with the ideal characteristics of learning forums, specifically where workers were likely to take into account the opinions of others, where work groups were given feedback on performance, and where work groups focused on organizational improvement. We created an index to represent the characteristics of work groups based on the following statements: "Work groups are trained to incorporate the opinions of each member," "Work groups receive adequate feedback that helps improve their performance," and "Work groups are actively involved in making work processes more effective."

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). Members of the group may be afraid to cause conflict by challenging accepted assumptions and other members, and so seek out confirmatory evidence while discounting discomfiting information. Groupthink therefore affects both the search for information and the way in which information is viewed, thereby limiting learning. One solution to group-think is to include a "devil's advocate" in the decision making process (Janis 1982, 267).¹ Scholars of learning organizations have described this in terms of 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). For this reason, we also included a response to the statement “People who challenge the status quo are valued” in our index of work group characteristics. The index demonstrated high inter-item reliability, as measured by a Cronbach’s alpha score of .89.

H5: Work groups with the characteristics of learning forums are positively related to organizational learning.

DATA AND METHODS

The data was obtained from a 2004 survey of Texas state agencies (listed in Appendix 1), the Survey of Organizational Excellence (SOE). The SOE was administered by the Organizational Excellence Group at the University of Texas at Austin. While the Office of Personnel Management and the Merit Systems Protection Board regularly conduct large-scale surveys of federal personnel, there is not to our knowledge similar scale effort to survey state government employees. A total of 62,628 employees were surveyed in 53 different state agencies, resulting in 34,668 usable responses, a response rate of over 55 percent. This confidential survey was administered primarily via email from which the respondent was provided an internet link to an online survey. Data collection was open for up to three weeks and reminder emails were sent to potential respondents. Employees without easy access to the internet were identified in advance and given a paper version of the survey. Most organizations used a census strategy in which all full-time benefit eligible employees were invited to participate. However, two organizations used a 20 percent random sample of all employees.

The survey is designed to capture common organizational and employment concepts. Appendix 2 provides lists the items used to construct the variables, as well as descriptive data for the variables. Respondents could choose from a five point Likert-scale response set ranging from “Strongly Agree” to “Strongly Disagree.” Respondents could also mark “Don’t Know/Not Applicable” or leave the item blank, and these responses were not used in our analysis.

Various demographic items were also collected. Our respondents closely mirror state employees (SAO 2002). Forty four percent of State of Texas employees are nonwhite, which matches the proportion of nonwhites among respondents. The average age of a state of Texas employee was 42.4 years in 2002. Among respondents, the most frequently selected age category was the 40-49 range. The experience of respondents in our sample is also similar to the overall state workforce. Almost 40 percent have less than five years of experience. The equivalent number for the entire workforce is 43 percent. The one area where there is a sizeable difference between our respondents and the state workforce is in gender. Fifty six percent of state employees are female, compared to 67 percent of respondents. However, this is primarily because our sample did not sample the Department of Corrections, and of the remaining state agencies, 66 percent are women, consistent with our respondents. In order to provide some reassurance that the findings are not driven by the nature of the sample, we include individual 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.² None of these controls proved to be significant or alter the nature of the relationship between the independent and dependent variables. While the agency controls are not reported in the results section, they were retained in the model.

Measuring Learning

Learning is a variable plagued by measurement difficulties. We therefore 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. For example, Kenney (2007) points how the different contextual settings dramatically impacts how law enforcement agencies and drug cartels learn. 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 another’s. Qualitative research may also have led to an over-emphasis on cultural attributes. As researchers see learning accompanied by certain cultural traits, they assume a causal relationship between the two. 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. For example, Baker and Sinkula (1999) developed an index that measured how much the organizational culture valued and encouraged learning. Marks and Louis (1999) measured learning as teacher’s perception of professional development, competence activities, and attitudes towards innovation. Schulz (2001) measured perceptions of information flow between

organizational units. Askim, Johnsen and Christophersen (forthcoming) asked respondents whether benchmarking affected agenda setting, decision processes and solutions. Another approach is to look for non-perceptual measures of learning. However, such measures have been either industry-specific, such as Levin's (2000) examination of incremental improvements in car design, or imperfect generic measures of learning, such as number of employee suggestions in a gainsharing system (Arthur and Airman-Smith 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 (Yanow 2000). 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 individual to refer to their own situation. Elsewhere, respondents are asked whether "we" have enough resources, whether people get the right information, whether decision authority is given to employees, and about the characteristics of work groups. For our dependent variable, respondents are asked whether "we" learn.

Our dependent variable is a scale of different learning items that share the assumption that groups of employees use knowledge for 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 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 comes from the Organizational Excellence Group, which collected the survey and provided aggregate summaries of that 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. The final part of our index therefore asks respondents to agree or disagree with the statement that “I believe we will use the information from this survey to improve our performance.” The index has a Cronbach alpha of .79, indicating that it has acceptably high levels of inter-item correlation (Nunally 1978).

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.

Insert table 1 here

The large sample size tends to inflate even relatively trivial (though real) relationships between the independent and dependent variables into statistically significant relationships. In interpreting the individual independent variables, it is helpful therefore to also consider the size of the relative impact of the regression coefficients. All of the theoretical variables in the survey are 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 was 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 pay-off if they devoted as much energy to creating learning forums as they have done to creating information systems.

The mission-orientation variable was the next most influential. A one unit increase in understanding of mission, values and the 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 mission, vision and strategies. This is not the same thing as producing a strategic plan.³ 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 2005b). Existing flexibility often allows for many of the changes managers wish to pursue. So while a sense of greater authority is helpful, learning can occur under existing authority. In addition, employees not used to additional authority may not have a clear idea of how to use it.

The impact of resources was 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.⁴ 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 approach 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 that have shown 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 forthcoming; Naff and Crum 1999; 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 was relatively small and significant only at the .01 level. Interestingly, level of education is negatively related to perceptions of organizational learning. One explanation is that 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. Culture and structure therefore 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.⁵

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 of 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?” Using structuration theory as a framing device helps to better answer that question, moving us beyond the cultural-structural debate, and instead focusing 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, Boersman and Weggeman 2003). For example, learning forums, from a structuration perspective, 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 recreating 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 2005a; 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 matters, 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? Popper and Lipshitz (2000) point to the fundamental importance of how leaders spend their time, attention and resources. Leaders can claim a wide variety of priorities, but employees look to a leader's actions to infer where the real priorities lie. For example, Askim, Johnsen and Christophersen (forthcoming) found that where senior managers and politicians participated in benchmarking processes, these learning forums were 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.

Even with structural OLMs such as information systems, such norms are important. For most organizations, information systems are already in place, and so the challenge for leaders is to ensure that such systems are truly useful, providing relevant information to the appropriate decision-makers in a timely fashion. The extent that leaders devote time, attention and resources to make clear that such information systems are central to important decisions, the more likely it

becomes that a norm of performance information use will develop (Moynihan 2005b; 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 is represented by informal talk, symbols, and action that form part of the organizational culture. More broadly, the existing organizational culture will have a profound impact on any effort to foster a greater mission orientation.

The duality of structure and culture is perhaps best illustrated with 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 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 such attributes are in place reflects a failure 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 is 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 imbalance between qualitative and quantitative research on learning in the public sector setting provides additional relevance to the findings.

In addition to offering an example of how to deal with the topic of organizational learning using non-case methodology, 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. While the articulation of learning forums drew upon the organizational learning literature to identify what process factors made dialogue successful (Moynihan 2005a), 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 tradeoffs 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 paper is the attempt to bridge the cultural and structural divide. Different camps within organizational learning have argued for structural and cultural approaches, while sometimes acknowledging that the other aspect is important to learning. We move beyond this division by pointing out that in practice, most of the key variables 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 both understand the extent that they are limited by past norms while

finding ways to reshape these norms by leveraging the structural *and* cultural aspects of their organization.

There is much additional research that can be done to answer the question “how do 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.

Figure 1: A Structural-Cultural Model of Organizational Learning

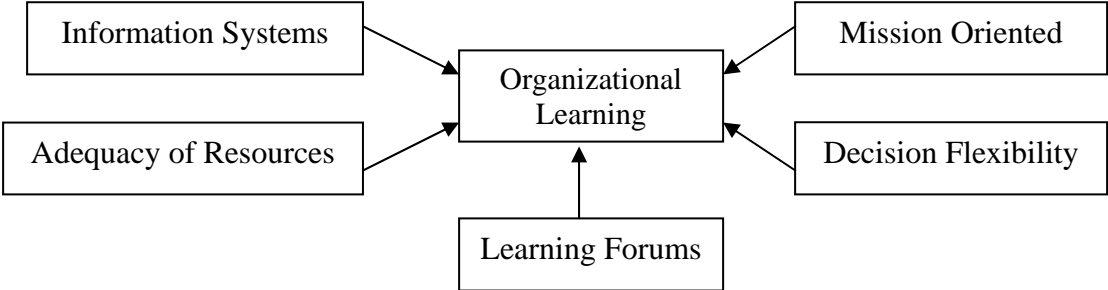


Table 1: OLS Regression on Organizational Learning Controlling for Agency Level Effects

Variables	Coefficient	Standard error
Constant	.843***	.135
Information Systems	.147***	.003
Mission Oriented	.137***	.004
Decision Flexibility	.070***	.003
Learning Forums	.419***	.005
Adequacy of Resource	.078***	.003
<i>Control Variables</i>		
Age	.014***	.003
Years with organization	-.017***	.002
Supervisor	.020**	.0071
Education	-.015***	.002
Female	.049***	.006
Minority	.017**	.006
Agency specific effects included; N=24614; ***p<.001; **p<.01 (two tailed) Adjusted R ² =.702; F=938.42		

Appendix 1: Agencies Surveyed

1. Board of Law Examiners
2. Office of the Attorney General of Texas
3. General Land Office
4. Texas State Library and Archives Commission
5. Texas State Auditor's Office
6. Texas Department of Information Resources
7. Texas Workforce Commission
8. Teacher Retirement System of Texas
9. Texas Department of Human Services
10. Employees Retirement System
11. Texas Real Estate Commission
12. Texas Department of Housing and Community Affairs
13. State Pension Review Board
14. Texas Department on Aging
15. Texas Lottery Commission
16. Texas Veteran's Commission
17. Texas Military Facilities Commission
18. Texas Commission on Fire Protection
19. Texas Savings and Loan Department
20. Texas Department of Banking
21. Texas Department of Licensing and Regulation
22. Texas Department of Insurance
23. Board of Plumbing Examiners
24. Texas Alcoholic Beverage Commission
25. Texas Board of Architectural Examiners
26. Texas Office of Consumer Credit Commissioner
27. Texas Credit Union Department
28. Texas Structural Pest Control Board
29. Public Utility Commission of Texas
30. Texas Commission on State Emergency Communications
31. Texas Department of Health
32. Texas State Board of Barber Examiners
33. Texas Board of Medical Examiners
34. Board of Nurse Examiners
35. Texas Funeral Service Commission
36. Texas State Board of Pharmacy
37. Texas State Board of Examiners of Psychologists
38. Texas Department. of Protective and Regulatory Services
39. Interagency Council on Early Childhood Intervention
40. Executive Council on PT & OT Examiners
41. Texas Forest Services
42. Texas State Board of Veterinary Medical Examiners
43. Texas Water Development Board
44. Texas Department of Transportation
45. Texas Department of Mental Health and Mental Retardation
46. Texas Juvenile Probation Commission
47. Texas Department of Criminal Justice
48. Texas Education Agency
49. Texas State Board for Educator Certification
50. Texas Transportation Institute
51. Texas Higher Education Coordinating Board
52. Texas Parks and Wildlife Commission
53. Texas Historical Commission

Appendix 2: Measurement of Variables

Variables	Survey items
Learning (dependent) (Cronbach alpha = .79)	We are encouraged to learn from our mistakes. 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 (Cronbach alpha = .89)	Work groups are trained to incorporate the opinions of each member. 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
<p>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.</p>	

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Notes

1 The term “devil’s advocate” comes from the Catholic Church. Beginning in 1587, the church appointed a canon lawyer to argue against proposed canonization candidates. The position became known as the “devil’s advocate.” It is perhaps telling that since the role was eliminated in 1983 the number of candidates beatified has dramatically increased.

2 To determine whether ordinary least square 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 53 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 basic model with just the theoretical and individual control variables. The inclusion of the fixed effects does increase the adjusted R², but only marginally from .700 to .702. Including the agency level controls does not affect the direction and significance of the relationships between the other independent variables and the dependent variable. To further test the suitability of the OLS 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.

3 It is important to note that with respect to learning we are assuming that providing the right information to the right people at the right time is superior to simply having an information system in place and that understanding strategic goals is superior to simply having a strategic plan. This assumption is based on previous research that has suggested that the mere presence of information does not foster use. Moynihan (2005a, 203) summarizes this research, and, Moynihan and Ingraham (2004), provide empirical evidence that range of information available does not affect use. We also partially test our assumption by substituting a new variable “Information systems are in place and accessible for me to get my job done” for the variable “The right information gets to the right people at the right time.” This substitute variable addresses the existence of an information system, but also incorporates the impact of information systems, though to a lesser degree than the original variable. If our assumption is correct, we therefore expect it to be significant, though less influential than the original variable. This proves to be the case. The coefficient for the substitute variable is .064, making it the lowest of the theoretical variables, compared with .147 for the original variable, which was the second-highest of the variables tested. We thank one of our anonymous reviewers for asking us to clarify this point.

4 The nature and strength of this relationship remains similar even if converted to a dummy variable to reflect extreme perceptions (i.e. if respondents strongly disagree that resources are adequate = 1, or if respondents strongly disagree/disagree that resources are adequate are 1).

5 Structuration theory has particularly focused on the tension between theories that emphasized broad structural forces as shaping social action and those which rely on an interpretative perspective to identify relevant factors, of which the cultural approach to learning is an example

(Yanow 2000). While previous applications of structuration theory to organizational learning sought to overcome the dualism of individual and organizational learning (Berends, Boersman and Weggeman 2003; Nonaka and Toyama 2003), we use it here to bridge cultural and structural approaches.