

How Project Management Office Leaders Facilitate Cross-Project Learning and Continuous Improvement

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ABSTRACT ■

The purpose of this study is to shed light on how project management office (PMO) leaders facilitate cross-project learning and continuous improvement. Twenty leaders of PMOs were interviewed; findings were validated by two focus groups. The research reveals that PMO leaders facilitate cross-project improvement by embedding accumulated knowledge from past project experiences into project management routines that are utilized across multiple projects. The research also points to the phenomenon of “red light learning,” where lessons learned sessions can be enculturated as punitive, undermining individual and organizational learning. Recommendations focus on enhancing the social capital of the PMO leader and improving the quality and quantity of reflective practice over the course of the project life cycle.

KEYWORDS: project management office; lessons learned; continuous improvement; performance improvement

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INTRODUCTION ■

Organizations that deliver products and services through project-based forms of working have increasingly introduced a new organizational entity called the “project management office” (Dai, 2002; Engle, 2005; Hobbs & Aubry, 2007). The impetus for introducing project management offices (PMOs) is often to improve project management performance and to reduce the number of “runaway” projects—those that fail to meet customer expectations, run over budget, or become compromisingly delayed (Stanleigh, 2006). Rad and Levin (2002) claim that the trend toward implementing PMOs in organizations will only continue as projects become “a way of life for more and more organizations” (p. 1). The purpose of this study is to shed light on how project management office leaders facilitate cross-project learning and continuous improvement.

Organizational Learning and Continuous Improvement in Project Environments

Marsick and Watkins (1999) claim that continuous systems-level learning is required if organizations are to continuously improve. Their view is based on the work of Argyris and Schön (1996), who view organizational learning as occurring if two criteria are satisfied: (1) individuals, either appointed by management or anointed by followers, “take their learning back to the system” and (2) the system has “structures, processes and a culture in place to embed and support organizational learning” (Marsick & Watkins, 1999, p. 12).

Project organization presents unique challenges when it comes to embedding past project learning for the benefit of future projects. In part because they are temporary forms of organization that disband upon the completion of their work, project teams often start solving problems anew rather than learning from the experiences of previous projects within the same organization (Scarborough, Bresnen, Edelman, & Laurent, 2004, p. 88). This often means that “the end of a project is consequently the end of collective learning” (Schindler & Eppler, 2003, p. 220). At the organization level, this “re-inventing the wheel” represents a lost opportunity to improve performance from one project to the next (Prusak, 1997).

Project Management Offices

Project management offices—also known by titles such as program management office, project management group, project management center of excellence, or directorate of project management—are “assigned various responsibilities related to the centralized and coordinated management of those projects under its domain” (Project Management Institute [PMI], 2004,

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p. 369). They have their origins in the middle of the twentieth century, as the defense industry needed to coordinate large, complex contracts that included many projects for a single large customer (Kerzner, 2006). The systematic study of PMOs has only recently begun to receive attention in the project management literature (Dai & Wells, 2004; Hobbs & Aubry, 2007), yet it is clear that PMOs have evolved into a great variety of forms, the diversity of which appear to be contingent upon organization-specific historical and cultural factors (Aubry, Hobbs, & Thuillier, 2008).

Although their forms and functions vary greatly, PMOs are most often staffed with individuals who “provide some combination of managerial, administrative, training, consulting and technical services for projects and the organization overall” (Dai, 2002, p. 26). Dai and Wells (2004) found that 45% of the PMOs in their study were established primarily because of the need to improve “. . . all elements of project management—including performance outcomes, lessons learned, and support for project managers . . .” (p. 545). Some suggest their mission is “to improve project management effectiveness, particularly by enabling the acquisition of knowledge from earlier failures and successes and by providing a range of support and facilitative services not only for projects but also for various management levels and support units” (Dai & Wells, 2004, p. 525).

Kerzner (2004) posits that the project office “may be in the best position to identify continuous improvement opportunities” because of its central role in housing project management practice standards and lessons learned (p. 314). Further, Walker and Christenson (2005) conceptualize project management offices as types of “knowledge networks,” which produce, synthesize, and distribute ideas. They incorporate best practices, tools, concepts, and techniques from prior experience and make them available to subsequent project teams (Walker & Christenson, 2005).

Problem, Purpose, and Research Questions

Previous cross-project learning research has found that senior managers, in their role as “intermediaries,” play an important role in connecting project members in attempts to facilitate cross-project learning (Bresnen, Edelman, Newell, Scarbrough, & Swan, 2003; Newell, Bresnen, Edelman, Scarbrough, & Swan, 2006). Newell et al. (2006), for example, found that “the most widely cited mechanism facilitating cross-project knowledge transfer was through senior managers, who were responsible for larger programmes, serving as the conduit” (p. 174). The importance of the brokering role played by senior managers, the authors claim, stems from their broad perspective as well as their hierarchical position. As one interviewee in their study noted, “the people that review the project frequently review many other projects and they can pass that information on to other teams” (p. 174).

Although previous research has found that managerial intermediaries broker cross-project learning, the literature has yet to explore the role of PMO leaders—a specific type of management intermediary with oversight over multiple projects—and how they attempt to facilitate learning from one project to the next. The purpose of this study is to shed light on the processes by which PMO leaders facilitate cross-project learning and continuous improvement.

The study explored three primary research questions:

1. What are PMO leaders’ perceptions of their responsibilities related to transferring lessons learned from one project to the next?
2. How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects?
3. What do PMO leaders perceive to be the enablers and barriers to sharing lessons learned for the benefit of current and future projects?

The significance of this study is twofold. First, it is intended to contribute to the literature on project-based learning, which has identified the problems associated with “reinventing the wheel” but has not yet examined how PMO leaders, with their mission of improving project performance over time, contribute to learning from one project to the next. Second, this research may provide information to PMO leaders and other managers of learning in project-based environments about what their peers are doing to facilitate cross-project learning and the associated challenges they face. This information may be helpful in efforts to improve practice.

Theoretical Background

Recent research in cross-project learning is in its early stages, yet a picture has emerged regarding what organizations have done to attempt to learn from project experiences and the barriers associated with these practices. By far the most common activity associated with learning from projects is the practice of reflecting on project experiences after a project is complete (Disterer, 2002; Kotnour & Vergopia, 2005; Newell et al., 2006). These “lessons learned” practices—also called project postmortems, postproject reviews, or after action reviews—involve project members in reflective discussions about what went well and what went wrong with the aim of improving future project performance (Kotnour & Vergopia, 2005; von Zedtwitz, 2002). The resulting lessons are then documented and stored in databases or on corporate intranets for retrieval by future project teams (Kotnour, 2000; Newell et al., 2006).

Despite the wide acknowledgment of the value of conducting lessons-learned practices at the end of projects (Disterer, 2002; Marsick & Watkins, 1999; Raelin, 2001; von Zedtwitz, 2002, 2003), researchers have found their actual deployment in project management practice to be mixed. Hobbs and Aubry

(2007) found that only 38% of PMOs consider conducting postproject reviews to be an important PMO function. Schindler and Eppler (2003) conducted action learning research with nine multinational companies and found that there is a “great discrepancy” between the need for project debriefing and its actual deployment in practice. In a survey completed by 62 managers from the United States, Europe, and Japan representing over 20 R&D organizations, von Zedtwitz (2003) found that 80% of all projects were not reviewed at all after completion, and the remaining 20% were reviewed without the use of a formally structured process.

In a study of 19 firms in project-based industries, Keegan and Turner (2001) found that all the companies in their study “without exception” had lessons-learned policies in place to capture learning from projects once completed. Yet even though policies were in place to hold the reviews, it rarely happened. Worse, the authors found that “in no single company did respondents express satisfaction with this process” (p. 90).

Newell et al. (2006) claim that “we need to consider problems with the actual practice” of lessons learned. They claim that the fundamental problem with traditional “codification” practices—where knowledge is written and stored for future use—is the pervasive underlying assumption that knowledge can be “possessed” and can therefore be readily “transferred” to others in textual form. This view does not account for the embedded, situated, and tacit nature of knowledge that manifests itself in practice (Newell et al., 2006). Their claim is that “some knowledge can be possessed independently of practice . . . while other knowledge is deeply embedded in practice, making social networks necessary for knowledge sharing” (p. 170).

Consistent with this view, in a study of two product development organizations, Antoni, Nilsson-Witell, and Dahlgaard (2005) found that engineers

considered “people-centered” vehicles to be more important than codification strategies for transferring improvement knowledge from project to project. And because postproject review practices are centered upon codification of lessons learned through a postproject report, the researchers found that “a reliance on post-project reviews to share knowledge across projects is doomed to fail, since this improvement structure is of low priority” (p. 890).

Likewise, in a study of five cases across project-based organizations in the United Kingdom, Bresnen et al. (2003) also found that the processes of knowledge capture, transfer, and learning across projects relied heavily upon “social patterns, practices and processes” among social networks and “communities of practice.” In communities of practice, the authors explain, “knowledge is constructed as individuals share ideas through collaborative mechanisms such as narration and joint work” (p. 161).

Wenger, McDermott, and Snyder (2002) observe that communities of practice are “in the best position to codify knowledge, because they can combine its tacit and explicit aspects” (p. 9). They define communities of practice as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4).

Conceptual Framework

Previous researchers have clearly pointed to the need to adopt a situated approach to cross-project learning that accounts for the socially embedded nature of knowledge and its development within communities of practitioners. This study therefore draws upon Wenger’s (1998) theory of situated learning and communities of practice in order to develop a conceptual framework for studying PMO leader perceptions and activities as they relate to cross-project learning. It is supplemented

by selected literature on reflective practice to address the limitations of Wenger’s (1998) theory in this area. The conceptual framework is depicted in Figure 1. Following Figure 1 is a narrative description of each of the components, including applicable background on Wenger’s (1998) theory.

The PMO Leader as Embedded Within a Constellation of Practices

Wenger (1998) views organizations as constituted by multiple communities of practice where knowledge is seen as embedded within and across these groups. As depicted in the conceptual framework, we would therefore expect PMO leaders to be immersed within a “constellation of practices” within their organization from which and through which knowledge about past project experiences may be negotiated and shared.

Project Teams as Constituted by Members From Multiple Communities of Practice

Cross-functional project teams can be viewed as consisting of members who may themselves belong to various communities of practice (Wenger, 1998). Sense (2003) argues that even project teams can develop into a community of practice over time. Consistent with these viewpoints, the conceptual framework begins on the left with knowledge negotiated at the project team level by team members from multiple communities.

PMO Leader Brokering

Brokering is the process of establishing connections between communities by “introducing elements of one practice into another” (Wenger, 1998, p. 105). Rad and Levin (2002) see PMO organizations serving two key constituencies: management and project teams. Dai and Wells (2004) confirm this view, finding that approximately two thirds of the 209 PMOs in their study reported directly to senior management, while the primary motivation for establishing these PMOs was to improve

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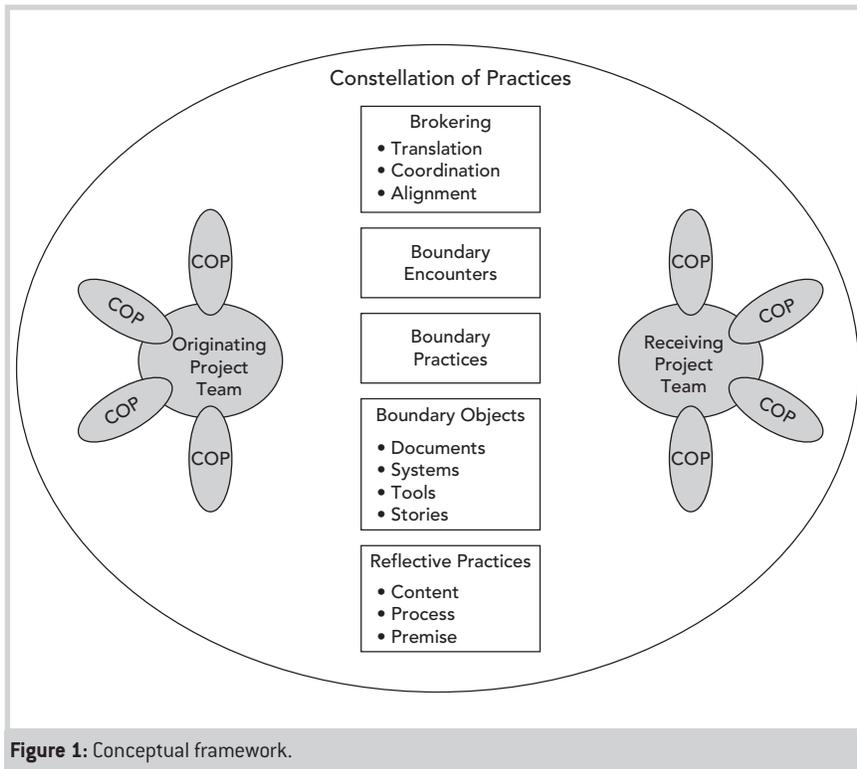


Figure 1: Conceptual framework.

performance at the project team level. PMO leaders can therefore be viewed as spanning at least three or more communities of practice: upper management, project teams (which may also develop their own community of practice), and the PMO organization, staffed as it is with its own personnel.

DeFillipi (2001) supports the learning potential of brokering roles by suggesting it may be possible that “the deepest learning accrues to people who assume brokering roles at the intersections of multiple communities engaged in projects requiring joint cooperation among their contributors” (p. 6).

Adopting Wenger’s (1998) view of brokering, we would expect PMO leaders to engage in processes of translation, coordination, and alignment among and between communities as depicted in Figure 1. Translation processes involve the rendering of something written or spoken in one community’s words into the language and practices embodied in another community; coordination processes

entail facilitating connections and transactions between communities and community members; and alignment processes involve addressing and resolving conflicting interests among two or more communities of practice (Wenger, 1998).

Boundary Encounters

Wenger (1998) describes “boundary encounters” as “single or discrete events that provide connections” across practices (p. 113). Given the boundary-spanning role of the PMO leader, the conceptual framework depicts boundary encounters as one of the ways in which PMO leaders might negotiate or share collective understandings of project lessons learned.

Boundary Practices

To the extent that PMO leaders are involved with boundary encounters that continue as a forum for mutual engagement, we would also expect to find PMO leaders engaged in the development of boundary practices whose enterprise is to “sustain a connection

between a number of other practices by addressing conflicts, reconciling perspectives, and finding resolutions” (Wenger, 1998, p. 114).

Boundary Objects

Boundary objects—artifacts, documents, terms, concepts, and stories—organize interconnections among communities (Wenger, 1998). Reading a memo that is a boundary object, for example, is not just a relationship between the person and the memo, but a relationship between the person and two or more communities of practice (Wenger, 1998). To the extent that objects belong to multiple practices, “they are a nexus of perspectives” (Wenger, 1998, p. 107). Boundary objects are thus depicted in the conceptual framework as a means by which PMO leaders may capture and share lessons learned.

Reflective Practice

Marsick (2000) characterizes situated learning and communities of practice as phenomena where learning “may be tacit or not highly conscious . . . and acquired primarily through trial and error, observation, modeling and socialization” (p. 12). The tacit nature of the learning that results can “dilute or distort lessons learned,” preventing practitioners from fully understanding the reasons for success and failure (Marsick, 2000, p. 12). Therefore, the informal and incidental nature of the learning that takes place within communities of practice underscores the need for structured reflective practices that focus on improving future actions (Marsick & Watkins, 1999; Raelin, 2001; Roth & Kleiner, 1998).

Mezirow (1991) defines reflection as a process whereby we “stop and think” about what we do or have done in order to “interpret and give meaning to an experience” (p. 104). He defines three types of reflection based on the object of the reflection process itself: content, process, and premise reflection. The first, content reflection, involves reviewing how ideas have been applied

in solving problems at each stage of the problem-solving process. The second form of reflection, process reflection, examines the problem-solving process itself, focusing on the procedures and assumptions involved in previous application. The third form of reflection, premise reflection, goes one step further by uncovering the assumptions that guided the need to address the problem in the first place. These levels of reflection are represented in the conceptual framework as a means by which PMO leaders might negotiate and transfer lessons learned from one project to the next.

The conceptual framework described above was used as the basis for developing the research methodology, including data collection and data analysis approaches.

Methodology

Interviews were conducted with 20 PMO leaders from a variety of industries, including health care, financial services, consumer products, software, management consulting, and airline transport. Participants were interviewed for approximately 60 minutes each using a semistructured interview schedule (see the Appendix). Prospective interviewees were initially identified through the researcher's contacts. A snowball sampling strategy (Merriam, 1998) was subsequently used whereby the researcher asked respondents and other contacts to provide referrals to individuals they knew who met the selection criteria.

A pre-interview questionnaire was distributed to confirmed respondents prior to conducting interviews. The purpose of this instrument was to collect basic demographic and contextual information. Areas of information requested included PMO mission, goals, and activities; the participant's job role description; title of supervisor; number of employees in the participant's company or division; number of full-time PMO staff; number of current projects being served; and a description

of the participant's work history. This information provided the researcher with a sense of the participant's company environment and scale of responsibility within that environment.

A coding scheme was developed based on the study's conceptual framework. Codes generated from the literature and those generated via open coding procedures were distinguished for use in developing findings and conclusions. Interrater reliability exercises were conducted with two colleagues, yielding interrater reliability of 75–80%.

After findings were compiled from the interviews, a focus group consisting of six project managers who had reported to PMO leaders in the past was conducted. Project managers represent "the next level down" on the organization chart in PMO environments. The aim of the project manager focus group was to provide an additional point of validation of the PMO leaders' perspectives. The project managers in this group were not interviewed individually and represent a different participant population than the PMO leaders.

Finally, a summative focus group was conducted with six PMO leaders who had been interviewed in order to confirm and elaborate the interview findings. This group, having participated in the interview process, represented a different population than the first focus group, which consisted of project managers who had reported into PMO leaders on past assignments.

The Sample

The research sample is composed of PMO leaders who (1) have worked as the leader of a PMO for at least 6 months; (2) have had responsibility for improving their organization's project management process; or (3) have been the leader of a group with the latter two criteria even if not named a "PMO." As shown in Figure 2, the functional domains in which the PMO leaders worked include information technology, product development, finance, and

human resources. Others served the strategic needs of their organization across all of these domains. A majority (65%) of the participants worked within the information technology setting. An approximately equal percentage of men and women were represented.

Findings

This section presents the key findings that emerged from the interviews and focus groups, all of which address the study's three research questions. Additional analysis and discussion follow.

Finding 1: Perception of Responsibilities Related to Transferring Lessons Learned

Research question 1 asked, "What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to the next?" Following is an overview of each of the elements of Finding 1, followed by illustrative quotes:

- Three quarters (75%) of participants perceived their primary responsibility as ensuring projects are delivered on time, within budget, and aligned with stakeholder expectations:

"Our performance is pretty much measured by whether or not we get a product out on time."

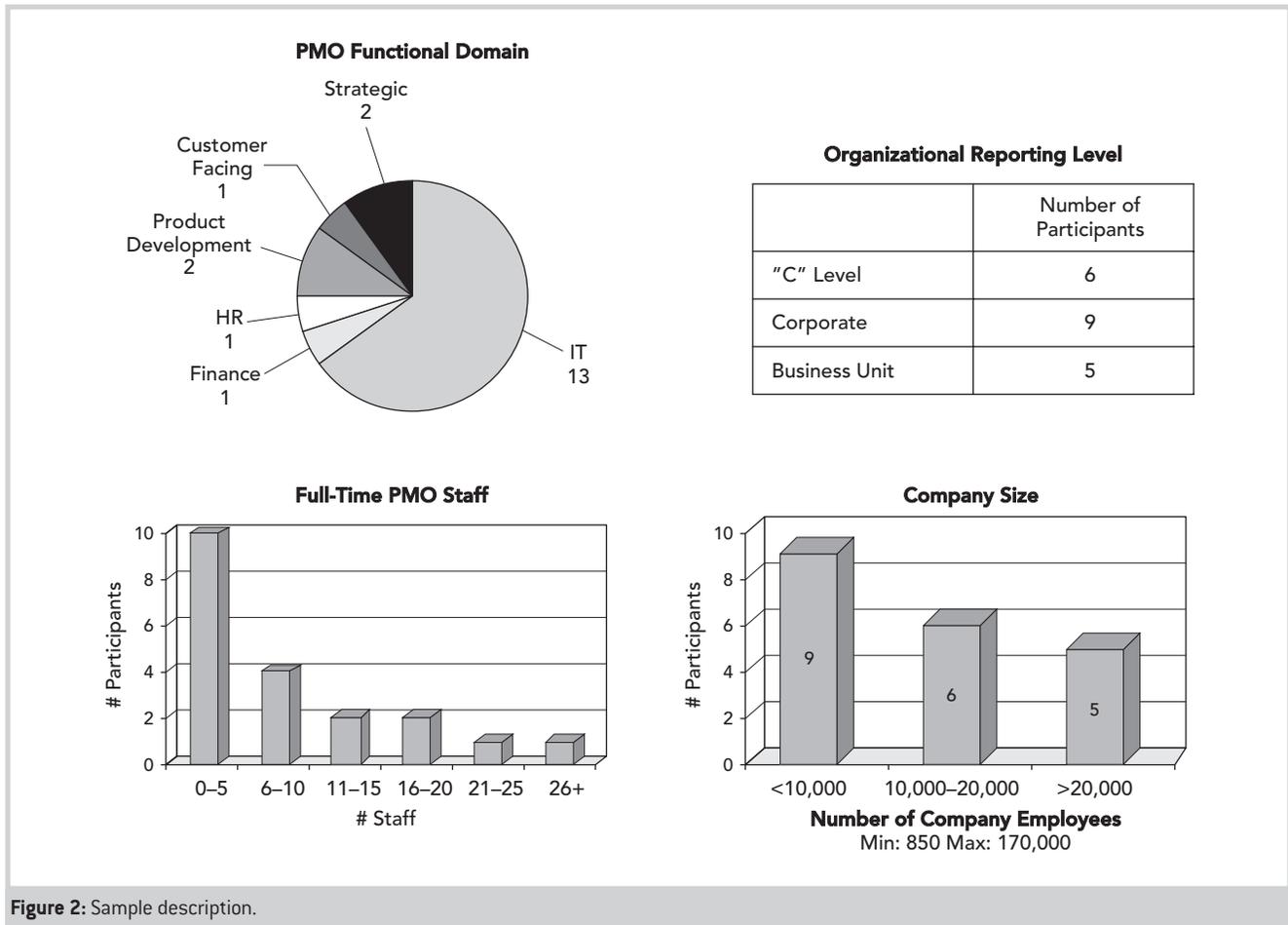
- Many (60%) participants expressed that they require project teams to identify lessons learned upon completion of their work.

"We do postmortems . . . to try and carry things from one project to the next, and to incorporate things into our methodology that we learn, especially on the larger projects."

- Just under half (45%) of participants expressed that continuous improvement in project performance is an important aspect of their responsibilities.

"I think the overall goal is let's just keep the bar—Let's raise the bar and keep raising the bar so that we do have excellence in our project execution."

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- Just under half (45%) of participants perceived they are responsible for ensuring that project management practices are implemented consistently across their organization.

"Of course, in order to make sponsors happy, as I said, the biggest problem we have is consistency. We don't have consistency, so to improve consistency to a certain level. That'll be the big one."

- A few (20%) participants reported that their responsibilities also include establishing a learning and growth environment for project managers.

"The PMO must be supported by skilled and experienced project managers. They need the appropriate training, tools, and supportive environment to do their best . . ."

Finding 2: How PMO Leaders Facilitate Cross-Project Learning

Research question 2 asked, "How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects?" The data reveal that all the PMO leaders—without exception—facilitated cross-project learning by brokering practice connections between management, project teams, and other communities. Brokering activities included establishing project management processes common to multiple projects, conducting lessons-learned sessions where reflective practices were utilized, and coordinating knowledge-sharing sessions between project managers. Other ways PMO leaders facilitated cross-project learning included formal training of prospective team members,

drawing on their and their staff's personal experiences as project managers, and ensuring people with the requisite competencies are staffed on future projects.

The subcategories of this finding are presented in Table 1, each supported by an illustrative quote. With the exception of the emergent themes, the subcategories are based on the work of Wenger (1998) and Mezirow (1991) as described in the Theoretical Background section.

Finding 3: Enablers of Cross-Project Learning

Research question 3 asked, "What do PMO leaders perceive to be the enablers and barriers to sharing lessons learned for the benefit of current and future projects?" Following is an

<p>Brokering</p> <ul style="list-style-type: none"> All participants indicated that they create practice connections between project teams and management, providing coordination, alignment, or translation between and among these communities. “Again, we scour and go through the project closing documents for each project that closed for that year, and we identify . . . what we believe to be the nuggets. Then . . . we will hold a formal lessons learned workshop with [all the project managers].”
<p>Boundary practices</p> <ul style="list-style-type: none"> All participants expressed that they had established processes that are common to multiple projects—including lessons learned practices (85%), status reporting and governance processes (85%), project methodologies (80%) and knowledge sharing forums (50%)—that surface opportunities for learning and provide a vehicle for transferring lessons learned to current and future projects. “And as a PMO, we insist upon a lessons learned or a postmortem after every project . . . We follow a fairly standard template, pretty robust. It’s not a witch hunt. It’s a What went well? What could have gone better?”
<p>Boundary objects</p> <ul style="list-style-type: none"> All participants expressed using tools and templates (85%), systems (65%), or documents (40%) that provide a means to incorporate learning from past project experiences into future projects. “They can share tools that worked on one project for another project . . . like Microsoft® Project . . . you can give some knowledge from previous projects of things that worked and things that didn’t work as you move to the next one.”
<p>Boundary encounters</p> <ul style="list-style-type: none"> The vast majority of the PMO leaders (85%) reported that they and/or their staff coordinated boundary encounters in order to either (1) intervene with project teams to diagnose and remediate project-related problems (55%), (2) transfer project management standards to new teams (35%), or (3) continuously improve project management processes (30%). “Then when I invited myself into the meeting and I heard some of the things that were being said, I realized that we had missed—We had missed a validation point along the way and we had to step back about three or four steps.”
<p>Reflective practices</p> <ul style="list-style-type: none"> Three quarters of the participants described how they engage in content reflection (50%) and/or process reflection (45%) to diagnose project-related problems and to help stakeholders learn from past project experiences. “So we get together as a team and we say, ‘Okay. What happened this time? What was really good this time? What wasn’t so good, etc.’”
<p>Formal training</p> <ul style="list-style-type: none"> Just under one half (45%) of the participants reported that they provide formal training in project management to transfer lessons learned, including project methodologies and “soft skills” deemed important to the organization. “Actually, we also offer, I’m going to call it The Fire Hose Project Management Class for Executives.”
<p>Personal experience as project manager</p> <ul style="list-style-type: none"> Under one half (40%) of the participants expressed that they or their staff drew upon their personal experiences as a project manager to determine where improvements needed to be made. “His first job here was as an infrastructure project manager. So it was the knowledge base and let’s share that knowledge and let’s get it out there so that people are not reinventing the wheel over and over and over.”
<p>Personnel selection</p> <ul style="list-style-type: none"> A few (15%) participants reported that they transfer lessons learned from past project experiences by selecting future project managers with the requisite competencies. “And what’s happened is that person is not engaged any longer in those sorts of projects . . . What’s required in that role is what I call optimistic half-empty thinking.”

Table 1: Overview of Finding 2.

overview of the categories of Finding 3, which is focused on the enablers of cross-project learning. Each is followed by an illustrative quote:

- Over half (60%) of the participants expressed a network of strong

relationships as an enabler of cross-project learning.

“I think I’ve been here enough, I guess I’m social enough that I have certain networks, that people feel

open, that they can come to me and talk to me about different situations.”

- Over half (60%) of the participants also reported support from senior management as a key enabler.

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“So to have the senior leadership team accept that and sort of support it, knowing that it’s going to cause additional work for the project teams. . . . I think it’s a good indication that they see value. . . .”

- A third (30%) of the participants expressed that their organization’s culture also plays a positive role in facilitating cross-project learning.

“. . .do well/do better is a cultural norm for us, so there were really no barriers there.”

- A quarter (25%) of the participants noted utilizing a “neutral” facilitator for lessons-learned sessions as an enabler.

“I think the key is the facilitation of the lessons-learned workshop. That’s one of the reasons why we tend to put a PMO liaison in that role, rather than the PM [project manager]. We make sure that there’s ground rules established at the beginning of each lessons-learned workshop, focusing and emphasizing on the need for honest feedback, declaring up front that the feedback that may be received isn’t personal; that we try to keep a limit to our criticisms at a constructive level.”

- A quarter (25%) also said developing the professional capabilities of project managers through training, apprenticeship, or knowledge sharing was an enabler of cross-project learning.

“About two years ago, the company sponsored a master’s program, because they saw a need for project managers and decided, ‘We have to figure out some way to grow our own project managers.’ And so they put 10 of us through a master’s program.”

- A tenth (10%) of the participants expressed reflection throughout the project rather than only upon project closure as an enabler.

“So the two ways in which we try to achieve that, or get around that

particular challenge, is we highly encourage the project team to keep a running list of lessons learned real time, or at least conduct a formal, a more formal check-in at the end of each phase of a project. . . .”

Finding 4: Barriers to Cross-Project Learning

Finding 4 presents an overview of the barriers to cross-project learning expressed by participants. Each is also accompanied by an illustrative quote:

- Just over half (55%) of participants pointed to a lack of direct authority over project managers or project teams as a major barrier to continuously improving upon past project experiences.

“One big barrier is ‘Who’s Melissa coming in here? Why do we have to tell her anything? Why are we going to do what she says?’ . . . [T]hat’s always a huge barrier, coming in as a PMO when you don’t actually have these people reporting to you.”

- Just under half (45%) of participants noted time pressures as a barrier to cross-project learning.

“Yes. The PMO can bring everybody together and we can talk about the lessons and I can document them and then I can circulate them. But if that’s while you’re already one-third of the way into the next project, how am I supposed to apply them as quickly as we’re doing the projects?”

- Just under half (45%) of participants also identified staff rotation as a barrier to cross-project learning.

“And that’s the one thing that I’m constantly dealing with now, is the change of roles and responsibilities . . . ‘Who else do I need to bring up to speed? . . . Because that constantly changes.’”

- Just over a third (35%) of participants expressed that team members may fear airing mistakes publicly, making it difficult to learn from past project experiences.

“Considering lessons learned, sometimes there are folks that don’t want to share that information if there was something that happened on the project that, you know, they don’t want to get out. . . .”

- A few (20%) of the participants also noted the following barriers to cross-project learning:

– Reflection is often deferred until the end of the project

“I think that if we were able to crack the nut of getting more real-time feedback of lessons learned from our teams, it would put us in a better space. . . .”

– Lack of senior management support

“Are they looking for the lessons learned? . . . [T]hey’re really not. What they are looking for is the status reporting on the projects.”

- Organizational members’ difficulty accessing past lessons learned

“So in the past . . . what they do is they gather some lessons learned and sometimes they post it in a common repository. But nobody looks at it and nobody even sees what’s in those lessons learned.”

Analysis

As seen in the Findings section, all the PMO leaders indicated that they broker practice connections between project teams and management, providing coordination, alignment, or translation between and among these communities in order to facilitate learning from past project experiences. Yet PMO leaders also broker learning within the context of two other categories found in the original conceptual framework—boundary encounters and boundary practices. It is therefore necessary to “thread through” the brokering activities of PMO leaders across these additional categories in order to gain a more holistic answer to the question “How do PMO leaders help their organizations learn from past project experiences for the benefit of current and future projects?”

	Project Intervention	Status Reporting and Governance	Lessons Learned Practices	Process Improvement	Transfer of Standards and Practices	Knowledge Sharing Forums	Total Brokering Occurrences
Brokering Occurrences within Context of . . .	29	14	13	10	10	6	82
Percent of Occurrences	35%	17%	16%	12%	12%	7%	100%

Table 2: Summary of brokering activities.

As summarized in Table 2, brokering activities that occurred across these categories were as follows: intervening to improve troubled projects (35%), facilitating status reporting and governance (17%), supporting lessons-learned practices (16%), improving processes common across multiple projects (12%), transferring standards and practices to new or existing teams (12%), and coordinating knowledge-sharing forums (7%).

As can be seen from Table 2, project interventions are clearly the most frequent area in which PMO leaders expressed brokering activities associated with cross-project learning. The researcher points to two possible reasons for this. First, the interview provided an inherent bias toward soliciting critical incidents in which PMO leaders personally utilized reflective practices. When soliciting critical incidents for this analytic category, the researcher asked, “Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to understand what went well or what went wrong with a past project experience?” This question may have provoked critical incidents that involved some form of conscious reflection and personal involvement on the part of the PMO leader. “Project rescues,” as one participant called them, may figure more prominently in the memory of participants than other more routine events in their past experience.

The second possible reason may relate directly to the results of Finding 1, which answers the question, “What are PMO leaders’ perceptions of their responsibilities related to transferring lessons learned from one project to the next?”

As discussed in the Findings section, the majority of the PMO leaders (75%) perceived their primary responsibility to be ensuring projects are delivered on-time, on-budget, and aligned with management expectations. This is consistent with Hobbs and Aubrey’s (2007) survey of 500 PMOs, where they found that activities related to monitoring and controlling project performance were considered most important by respondents. To monitor project performance, many of the PMO leaders in this study maintained a “dashboard” status report for management that listed projects red, yellow, or green. These “traffic light” ratings were intended to provide a quick indication of whether the project was meeting expectations. Red often indicated that a project was failing its stated timeline, budget, and/or scope. Green indicated that a project was on track, while a yellow rating provided a warning signal that the project was at risk.

The participants in the project manager focus group confirmed that it is largely when problems are escalated—when they are tagged with a “red” or “yellow” light on the dashboard—that the PMO leaders tend to intervene and

diagnose the causes behind the problems.

Project Manager 1: What does it mean when it’s green? [CLAP-CLAP] “Move on to something else.” They don’t even want to know about it.

Project Manager 3: Exactly.

Project Manager 1: But the problem is, that’s right. How do you learn? Because people are saying, Don’t worry about it. . . . Just finish it off. Just keep it green and get your hands off. And then jump onto the yellow or red project.

Project Manager 4: It’s like if you’re green, “Whatever you’re doing, just keep doing it.” You know?

Project Manager 1: Yeah. If you’re doing it right, we don’t learn from it. Because you don’t know what you did right. [laughs]

Project Manager 4: That happens. That happens.

Focusing reflection and diagnosis on troubled projects at the exclusion of “green” projects is a central feature of what the researcher calls “red light learning.” The above exchange provides further evidence that it may not be simply an inherent bias in the research, but also the dynamics associated with escalating problems to higher levels of management that led PMO leaders to report a predominance of their individual brokering activity in association with improving troubled projects.

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This analysis does not mean to suggest that learning from past project experiences only occurs when PMO leaders intervene. Scarbrough, Swan, Laurent, and Bresnen (2004) have shown that learning in project organizations can be seen as “nested,” occurring at different but interrelated levels simultaneously. This study did not investigate learning processes at the project team level, but instead focused on the role of the PMO leader and how they facilitate learning from one project to the next.

Discussion

A revised conceptual framework is depicted in Figure 3 that (1) incorporates the previous analysis of PMO

leader brokering, (2) builds on the initial conceptual framework presented in the Theoretical Background section, and (3) includes additional interpretations based on the barriers and enablers of cross-project learning presented in the Findings section. The revised conceptual framework is intended to serve as a vehicle for synthesizing this study’s findings and analysis within the context of other research in the project-based learning and organizational learning domains.

The major categories of the conceptual framework include social capital, defensive routines, PMO leader brokering, and collective brokering. Each of these elements is discussed following Figure 3.

Social Capital

Wenger (1998) characterizes brokering as a complex process fraught with social challenges. He claims that brokering requires “enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating transactions between them, and to cause learning by introducing into a practice elements of another . . .” (Wenger, 1998, p. 109). Because boundaries lack the negotiated understanding of what defines competence at full participation in a community of practice, the value of brokering can be difficult to recognize. Hobbs and Aubry (2007), for example, found that the existence of

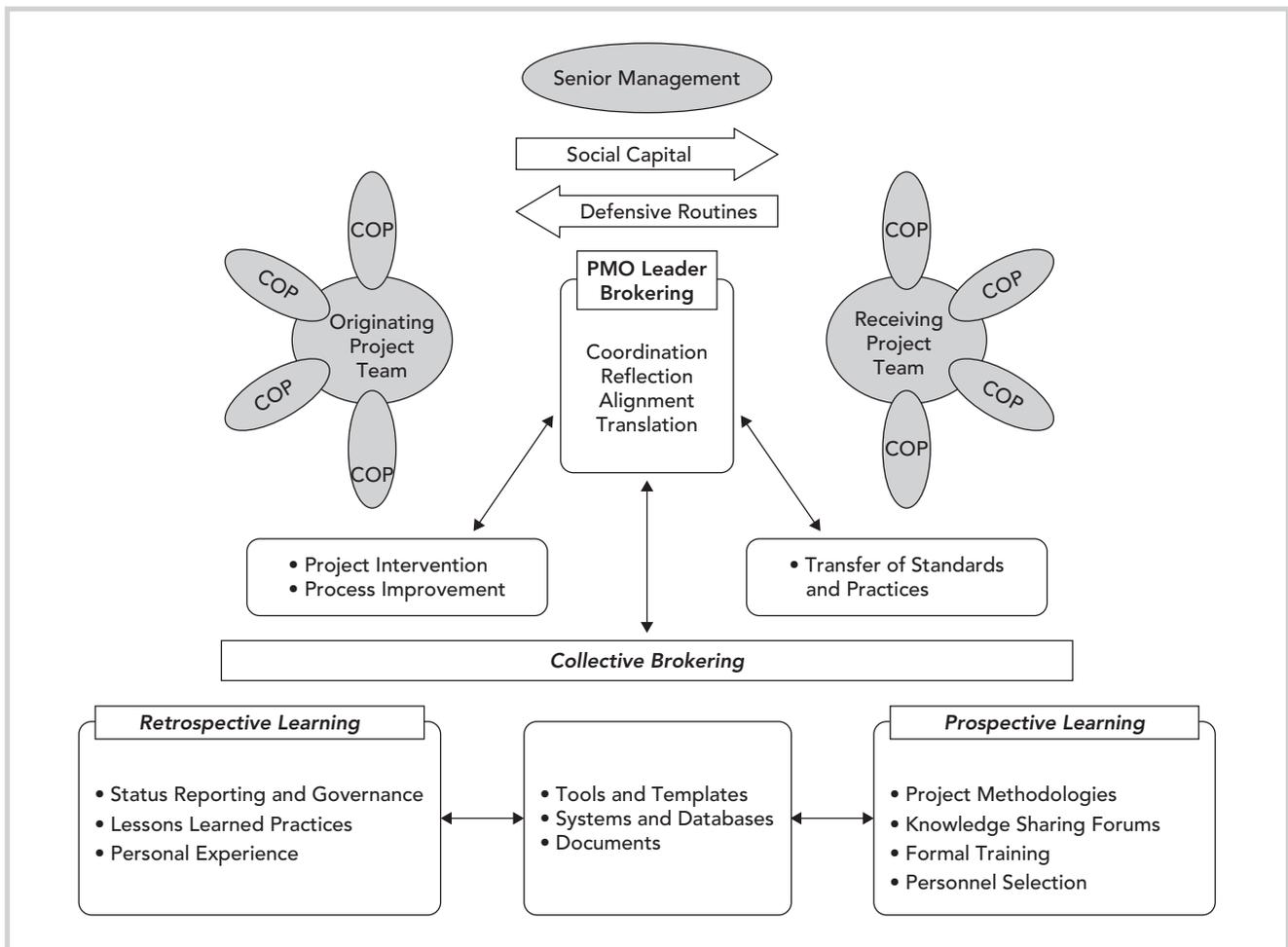


Figure 3: Revised conceptual framework.

42% of the PMOs in their study had been questioned at one point in time. Moreover, 41% of the PMOs in their sample had “little or no decision-making authority” (p. 79).

It is not surprising then, that 55% of the PMO leaders in this study reported insufficient authority over project teams as a major barrier to cross-project learning. Given their boundary-spanning role across communities, direct authority may be perceived as a route to achieving the legitimacy required to gain the cooperation and attention of project managers, teams, and management.

It is this researcher’s contention that the two most frequently expressed enablers of cross-project learning—a strong network of good relationships and support from senior management—can be seen as both contributors to and by-products of the level of legitimacy required of the PMO leader if they are to mobilize the activities required to facilitate learning from one project to the next.

A strong network and support from senior management are closely aligned with the concept of social capital, which Nahapiet and Ghoshal (1998) define as “the sum of the actual and potential resources embedded within, available through, and derived from, the network of relationships possessed by an individual or social unit” (p. 243). Social capital appears to be an important factor in the PMO leaders’ ability to facilitate cross-project learning, particularly when they lack a direct line of authority over project members.

Cervero and Wilson (2001) claim that adult learning in any context represents a struggle for knowledge and power. Learning is not only shaped by relations of power, but it also plays a role in reproducing or changing these relations. Taking this perspective, the negotiation of meaning associated with project lessons learned can also be seen as a political endeavor, the results of which depend on the relative power associated with project teams,

management, and the PMO. Project teams can exercise power by excluding the PMO from discussions of project lessons learned. Likewise, the PMO leader can exercise power by intervening with project teams to facilitate learning. The learning that results in either case will necessarily be negotiated based on the interests of those involved and may represent a privileging of certain interests over others. For example, where the PMO leader is involved and has garnered sufficient legitimacy, the learning outcomes may be shaped by the PMO leader’s interest in project team conformance to existing standards and processes. Did they follow established routines? Why or why not? In situations where the PMO leader is not present or has not attained a sufficient level of social capital, emphasis may be placed elsewhere; the project team may not have a vested interest in improving the organization’s project standards and processes.

Social capital is therefore represented in the revised conceptual framework as an enabler of cross-project learning.

Defensive Routines

As shown in the Findings section, time pressures were the second most frequent barrier to cross-project learning, noted by 45% of interviewees. One might simply surmise that if organizational members do not have the time to engage in reflective practices, processes associated with replicating success and avoiding past failures may simply require increased visibility and attention in order to be effectively deployed. Yet this conclusion may not tell the whole story, especially given that, as reported in the Findings section, 50% of the PMO leaders indicate that upper management expected them to continuously improve project delivery.

Researchers in previous project-based learning studies have also noted time pressures as a barrier to learning from past project experiences (Disterer, 2002; Keegan & Turner, 2001; Schindler & Eppler, 2003; von Zedtwitz, 2003). In

Keegan and Turner’s (2001) study of 19 project-based firms, for example, the authors found that it was “common throughout the study for respondents to list impressive practices in place to facilitate organizational learning, and then at the very end to state they do not work, or are not used, because of the time pressures on those people whose learning is the focus of these systems” (p. 91).

The researcher posits that it may not be simply a lack of time that limits the use of reflective practices, but rather defensive routines that conspire to make conscious reflection and learning much less appealing to organizational members than, say, moving to the next project. Argyris (1995) and Argyris and Schön (1996) describe organizational defensive routines as “any action, policy, or practice that prevents organizational participants from experiencing embarrassment or threat and, at the same time, prevents them from discovering the causes of the embarrassment or threat” (Argyris, 1995, p. 22). “Face-saving” is one such defensive routine, the rules of which Argyris describes as follows: “when encountering embarrassment or threat, bypass it and cover up the bypass” (p. 20).

It is not difficult to envision defensive routines at work within the project environment, especially within the context of “red light learning,” where management and the PMO intervene with project teams to understand what went wrong after a project was classified as “red” on the PMO leader’s dashboard status report.

Consider a situation reported by Melissa, a PMO leader who observed a lessons-learned session with a project team:

The project manager was just absolutely despised because of his approach. A nice guy, but his approach was always attacking people. So unfortunately that’s what that turned out to be. He did have someone else run it for him, but

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that person is a vendor reporting to him. He shares his office. So that attitude still came through and it was sort of a blame environment, even though we tried very much not to [have it that way] . . .

She then went on to talk about how a more senior manager attending the meeting used “time pressures” as a way to focus solely on what went wrong:

And it was really interesting because the Director who was in there said, “Do you know what? We don’t have time. This is a short meeting. Let’s not worry about what went well. Let’s just focus on what went wrong.”

It is perhaps not surprising that time pressures were once again mentioned as the reason the lessons were never distributed:

By the time he came back, he said, “Well, yeah. That’s great feedback but I really don’t have time.” And it never went out to anyone. I don’t think the feedback went to anyone, in the end. . . . We’re setting up the PMO, but there’s not a lot I can do about this one, only in thinking about the whole postmortem process in general.

In sum then, it is the contention of this researcher that under conditions of red light learning, which may also include “heated” lessons-learned sessions as in the above example, reflective practices can become enculturated as a punitive experience, making it more likely that defensive routines will be perpetuated, further reducing their utility and effectiveness. It may be that red light learning and the associated defensive routines it inspires may contribute to Keegan and Turner’s (2001) finding that “in no single company did respondents express satisfaction with this process” (p. 90).

Defensive routines are therefore represented in the revised conceptual framework as a barrier to cross-project learning.

PMO Leader Brokering

The PMO leader brokering analysis in the previous section indicates that PMO leaders not only broker in support of boundary practices such as status reporting and governance, lessons-learned practices, and knowledge sharing forums, but that they also intervene in the project environment to (1) improve troubled projects, (2) improve processes common to multiple projects, and (3) transfer standards and practices to project teams.

All of the above elements are represented in the revised conceptual framework.

Collective Brokering: Retrospective and Prospective Learning Practices

Scarborough, Bresnen et al. (2004), drawing on the work of Vera and Crossan (2003), view learning and knowledge as intertwined in an “iterative, mutually reinforcing process” (p. 493). Learning produces new knowledge, and knowledge impacts future learning. Adopting this view, the conceptual framework distinguishes between two categories of boundary practices found in this study: retrospective learning practices and prospective learning practices. Retrospective learning practices include activities, processes, and artifacts aimed at surfacing, generating, and reviewing knowledge from past project experiences. Prospective learning practices include activities, processes, and artifacts aimed at transferring knowledge from past project experiences to future projects.

As shown in the revised conceptual framework above, collective brokering categories that emphasize retrospective learning include status reporting and governance, lessons-learned practices, and the personal experience of project members. Prospective learning categories include project methodologies, knowledge-sharing forums, formal training, and personnel selection. Categories with relatively equal emphasis on both retrospective and prospective learning include all boundary

objects—tools and templates, systems, and documents.

Boundary practices such as status reporting and governance, lessons-learned practices, project methodologies, and knowledge sharing forums—all forms of collective brokering—are viewed as organizational routines (Bresnen, Goussevskaia, & Swan, 2005) through which and by which knowledge is captured and transferred for the benefit of current and future projects.

Bresnen et al. (2005) describe organizational routines as “repetitive, recognizable patterns of interdependent actions involving multiple actors” (p. 28). The development of these routines represents a shared history of learning (Wenger, 1998) among management, the PMO, and project teams. Boundary practices are a means through which “lessons learned” can be transferred from one project to another.

Boundary practices can also be construed as a means by which process knowledge from past project experiences can be embedded into organizational routines for the benefit of future projects. Newell et al. (2006) describe process knowledge as processes that a team deployed in order to achieve their goals. Process knowledge can be distinguished from “product knowledge,” which the authors define as “knowledge about what had actually been achieved in relation to the stated goals or objectives” of a project (p. 175). The transfer of project methodologies, including embedded process knowledge, is accomplished through templates that are often stored on intranet portals for use across multiple projects.

Drawing on the work of Zollo and Winter (2002) and Feldman and Pentland (2003), Bresnen et al. (2005) claim that organizational learning “concerns how change is accomplished through the development of capabilities tied to the production and reproduction of new organizational routines” (p. 29). Adopting this perspective, PMO leaders can therefore be viewed as knowledge brokers who,

through the establishment of both retrospective and prospective collective brokering processes, help their organizations learn from past project experiences by embedding process knowledge into organizational routines that can be transferred to new or existing projects.

Conclusions

The researcher presents three conclusions based on the results of this study. Following these conclusions, four recommendations are provided for PMO leaders and other managers who endeavor to improve their organization's ability to learn from past project experiences.

Conclusion 1

The first conclusion drawn from this study is that PMO leaders are knowledge brokers who facilitate organizational learning and continuous improvement in the project environment. As discussed in the Theoretical Background section, Marsick and Watkins (1999) claim that organizational learning can occur if two criteria are satisfied: (1) individuals, either appointed by management or anointed by followers, "take their learning back to the system" and (2) the system has "structures, processes and a culture in place to embed and support organizational learning" (Marsick & Watkins, 1999, p. 12). This study demonstrates that PMO leaders can in fact bring learning "back to the system" and that they routinely establish processes, structures, and systems that embed this learning across project teams within their organizations.

Conclusion 2

The second conclusion to be drawn from this study is that organizational routines that are utilized by multiple projects can provide project organizations with a repeatable way to generate and transfer learning from past project experiences, yet they can also constrain project teams if they are built upon lessons primarily drawn from failed

projects. Organizational routines have been identified by previous theorists and researchers as a means by which collective know-how from previous experiences can be embedded into the everyday work of organizational members (Becker, 2005; Becker, Lazaric, Nelson, & Winter, 2005; Bresnen et al., 2005; Feldman & Pentland, 2003; Szulanski & Jensen, 2004). This study demonstrates that organizational routines in the project management environment can help to overcome these challenges. They not only provide a formal mechanism for lessons-learned practices, but they can incorporate learning from past project experiences in the form of improved project methodologies and templates that can be transferred to future project teams.

Conclusion 3

The third conclusion from this study is that defensive routines may distort or constrain organizational learning from projects, making it less likely that future project teams will benefit from previous project team experiences. Under conditions of "red light learning," reflective practices can become enculturated as a punitive experience, making it more likely that defensive routines will be perpetuated, further reducing their utility and effectiveness.

Recommendations for PMO Leaders

The researcher provides four recommendations to PMO leaders and other managers who endeavor to improve their organization's ability to learn from past project experiences. Overall, these recommendations are aimed at enhancing the social capital of the PMO leader and establishing conditions in which organizational members can reflect productively on past experiences by reducing the effects of defensive routines.

Recommendation 1: Focus on accumulating social capital across multiple communities by establishing a network of strong relationships built on trust, professional development, and mutual understanding.

As knowledge brokers across multiple communities of practice, PMO leaders must maintain enough distance from each community in order to be able to offer balanced perspectives, yet they also need to attain a degree of legitimacy among these communities in order to mobilize attention. Therefore, it is essential that PMO leaders build a strong network across communities in order to enlist support and effectively negotiate practice connections. Given the likely pervasiveness of defensive routines and their confounding effects on reflection and learning, it is necessary to gain the trust of organizational members by emphasizing professional development over more punitive approaches and by understanding the needs of each community and their members rather than imposing practices that demonstrate a lack of understanding of their unique requirements.

Recommendation 2: Focus equal emphasis on learning from successful projects as those that appear to have failed or run off-course.

If lessons-learned practices are primarily focused on troubled projects, then the resulting improvements in the form of new organizational routines may become distorted, overemphasizing practices that avoid risk and tighten controls in order to prevent such failures from reoccurring. The resulting routines may shackle future project teams with burdensome processes that limit their innovative potential. While avoiding failures is a cornerstone of lessons-learned practices, replicating successes should be of equal priority.

Moreover, if formal learning practices are continually focused on poorly performing projects, the organization risks enculturating learning practices as punitive, making engaging in this process a less-than-appealing prospect for organizational members. It is recommended that PMO leaders actively engage successful project teams in formal learning practices not only to make the learning process more effective and engaging, but also to discover the

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reasons why projects succeed so this knowledge can also be embedded into future project routines.

Recommendation 3: Reflect over the course of the project rather than only at project closure.

Performing lessons-learned sessions upon project completion may be a useful way to uncover learning from the project overall. However, project teams may not have recorded learning as the project progressed. For projects that last for months or years, project members will clearly have difficulties surfacing memories about the ways in which they solved problems over the course of the project, making the learning generated in these sessions highly selective and potentially less than useful for future teams. It is recommended that PMO leaders encourage project teams to reflect more frequently over the course of the project life cycle, perhaps weekly or upon conclusion of each project milestone.

Recommendation 4: Establish conditions more conducive to productive reflection in lessons-learned sessions by utilizing a skilled, "neutral" facilitator.

Lessons-learned sessions can be dominated by defensive routines, which can distort the reflective process and block learning at the project level. The "lessons" that result may therefore not represent the true experiences of project teams, further undermining the organization's ability to continuously improve. It is recommended that PMO leaders provide a means for project teams to utilize a trained facilitator from outside the project team who can help the team uncover its tacit knowledge and provide conditions that foster equal participation so organizational members' defensive routines do not undermine the session. A skilled facilitator from outside the team can help the group avoid "blame-storming" and focus on the processes by which they achieved their outcomes, thus creating an atmosphere less conducive to defensiveness. ■

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Appendix: Interview Schedule

Research Question 1: What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another?

1. Can you describe the mission and/or goals of your group?
2. Can you briefly describe the types of activities in which your group engages to carry out its mission and goals?
3. Where does your organization report to within the formal organization structure?
4. What are the expectations of your boss with respect to improving performance from one project to the next?
5. What are the expectations of your boss with respect to identifying lessons learned and/or spreading internal best practices from previous project activities?

Research Question 2: How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects?

6. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to arrive at a common understanding of project lessons learned?

Say more about each example.

- What triggered the event?
 - In what setting did this event take place? A meeting, workshop, hallway conversation, private reflection, etc.
 - Who was involved?
 - What were you feeling at the time? Why were you feeling that way?
 - Can you say more about the processes or procedures you might have in place to get this information?
 - Can you describe any documents, systems, tools, stories, or methods that were involved?
 - Can you describe how you and/or others stepped back from the situation and reflected on why the project succeeded or failed?
 - What were the barriers you or your team faced in this situation?
7. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to ensure lessons learned were incorporated into future projects?

Say more about each example.

- What triggered the event?
- In what setting did this event take place? A meeting, workshop, hallway conversation, private reflection, etc.
- Who was involved?

- What were you feeling at the time? Why were you feeling that way?
- Can you say more about the processes or procedures you might have in place to transfer the lessons learned to another team?
- Can you describe any documents, systems, tools, stories, or methods that were involved?
- Can you describe how you and/or others stepped back from the situation and reflected on how the previous success or failure might apply?
- What were the barriers you or your team faced in this situation?

Research Question 3: What do PMO leaders perceive to be the enablers and barriers to sharing lessons learned for the benefit of current and future projects?

8. In what ways does the organization support your efforts to learn from project work and/or share lessons learned with your team and others?
9. If you were given the authority, what would you do in the organization to make it easier to learn from project work and share lessons learned with your team and others?