An Exploratory Study of Project Management Office Leaders and their Role in Facilitating Cross-Project Learning

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ABSTRACT

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Jerry Julian

The purpose of this study is to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. Although managerial intermediaries have been found to play a role in cross project knowledge exchange, the literature has yet to explore how PMO leaders, in their role as intermediaries between project teams and management, attempt to facilitate cross-project learning.

A qualitative research approach was used to study the perceptions and activities of 20 PMO leaders from a variety of industries. A majority (65%) of the participants worked within the information technology setting. Other functional domains represented include human resources, finance, and product development. Two focus groups were conducted to triangulate and confirm the findings: one consisting of six project managers who had reported to a PMO leader in the past and another with six PMO leaders who had been interviewed in order to confirm and elaborate the findings.

Wenger's (1998) theory of situated learning and communities of practice was utilized as this study's primary theoretical foundation. Selected literature on reflective practice in the workplace was also incorporated.

The research reveals that PMO leaders facilitate cross-project learning by brokering practice connections across communities through a combination of retrospective and prospective learning practices. The research also points to the phenomenon of "red light learning," where PMO leaders engage project teams in reflective practice most often to remediate troubled projects. The researcher posits that under these conditions, reflective practice can become enculturated as punitive, perpetuating defensive routines that undermine cross-project learning. Recommendations focus on improving the quality and quantity of reflective practice and enhancing the social capital of the PMO leader as knowledge broker across communities and teams.

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Chapter 1
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; Kerzner, 2006; Rad & Levin, 2002). The impetus for introducing Project Management Offices (PMOs) is often to improve project management performance and to reduce the number of "runaway" projects – those which 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 the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time.

Project Organization

Organizing work under the auspices of projects and project teams has become increasingly prevalent in the private and public spheres of organizational life (DeFillippi, 2001; Keegan & Turner, 2001; Love, Fong, & Irani, 2005; Rad, 2001). Lundin and Midler (1998) suggest that projects were previously a "weapon in the strategy for growth" of a few of the most enterprising firms (p. 1). They are today more and more a necessity for survival for the common private or public organization (Lundin & Midler, 1998). In part because project teams 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 (Scarbrough, Bresnen, Edelman, & Laurent, 2004, p. 88). At the organization level, this

"re-inventing the wheel" represents a lost opportunity to improve performance from one project to the next (Prusak, 1997).

Both external pressures and internal complexity have driven organizations to adopt project-based organization (Martinsuo, Hensman, Artto, Kujala, & Jaafari, 2006). The forces of globalization have created an environment of rapid change where standard production is being shifted to lower-wage economies, buyers have a heretofore inconceivable range of choices, and innovations and new technologies are developed and introduced at unparalleled speeds (Friedman, 2005). These environmental forces trigger the need for flexibility, agility and speed in the way companies develop and produce new products, service customers and identify areas for continuous improvement.

Projects are created in organizations to respond to these rapidly changing environmental conditions in order to accomplish internal change, deliver products and services to clients, and experiment with new approaches (Keegan & Turner, 2001). As Sense (2003) explains, "projects now are used to accomplish a diverse and often complex set of organizational goals or changes that would otherwise be less obtainable by the permanent organization, particularly where the fast-speed and high quality of goal achievement is highly desirable" (p. 4).

Outcomes of project work can be focused towards internal customers, as in developing a new product or implementing a new customer information system, or towards external customers, as in the construction, engineering, and consulting industries.

Project Management

Traditional project management is defined as "the process of planning, organizing, directing and controlling company resources for a short-term objective

established to achieve specific goals (Ayas, 1996). Project-based management, whether directed to internal or external customers, has at least four differentiating features as compared with other management approaches (Martinsuo et al., 2006). First, it is directed toward achieving specific objectives, "deliverables" or end-products within a specified budget and timeframe. These three key parameters – objectives, budget and schedule – have been termed the "triple constraint" because of their centrality in project-based management. Objectives direct the work towards the results to be obtained, the product to be produced or the service to be performed (PMI, 2004). The end-products, in the form of "deliverables," represent the outcomes of the project work and can take the form of new products, services, information systems, organizational strategies, organizational improvements, or any other output that is intended to meet an internal or external customer's expectation.

The second differentiating feature of project-based management is the establishment of a temporary organizational form – the project team – that exists outside the functional boundaries of the permanent organization and whose members disband after completion of the project. Project teams are typically managed by a project manager, who is seen as the individual responsible for overall project success (PMI, 2004). The project manager is also the key liaison to the project's sponsor. The project sponsor is typically a senior manager who provides funding for the project and guides the formation of the project's objectives, scope and timeline (PMI, 2004).

The third differentiating feature of project-based management is that it draws on both standard and organization-specific tools and practices. Two major professional certification and development bodies provide a set of standards in Project Management

Practice that have become widely accepted. The largest organization, the Project Management Institute, currently has 200,000 members, over half of whom have been certified as "Project Management Professionals." The International Project Management Association, with membership primarily outside of the United States, has over 40,000 members. Both organizations have globally distributed members and promote definitions, standards, practitioner competencies, and a comprehensive codified knowledge base. The "Project Management Body of knowledge" published by the Project Management Institute, for example, is in its third edition.

The fourth differentiating feature of project-based management is that it involves project managers whose responsibility is often to coordinate members distributed across geographic, functional, temporal and organizational boundaries (Scarbrough, Swan, Laurent, & Bresnen, 2004; Staber, 2004). More and more, project managers and project teams collaborate in ways that are mediated by information and communications technologies (ICT) across time zones and across cultural, functional and organizational differences (Griffith & Sawyer, 2006).

Project Management Offices

Project Management Offices (PMOs) - also known by titles such as Program Management Office, Project Management Group, Project Management Center of Excellence, or Directorate of Project Management – 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). PMOs have has since evolved into a variety of different forms yet are typically staffed with full-time members who "provide some combination of managerial, administrative, training,

consulting and technical services for projects and the organization overall" (Dai, 2002, p. 26). The role of the PMO is to provide a focal point for the discipline of project management, in some cases taking on direct responsibility for managing projects and in other cases providing consultative or administrative services to project managers, project teams and/or senior management (Dai, 2002; Kerzner, 2004; Rad & Levin, 2002).

Rad and Levin (2002) describe PMOs as providing support at both the project level and the management level. Although each organization implements PMOs in different ways, support at the project-level is provided through training, consulting and mentoring to project personnel. At the management level, PMOs support continuous improvement by "archiving project performance data, compiling lessons learned, establishing knowledge management systems, and developing checklists and tools for standardized project management processes" (Rad & Levin, 2002, p. 3).

Kerzner (2004) claims that the concept of the PMO "could very well be the most important project management activity in this decade" (p. 379). The promises of PMOs include standardization of the project management process, better resource utilization, more effective prioritization of work, and the development of future project managers (Kerzner, 2006). Similarly, Rad and Levin (2002) suggest that the primary benefits of PMOs are the "attainment of formalized and consistent project management practices throughout the organization and improvements in project performance" (p. 4).

Although little is known about the role and activities of PMO leaders themselves, Dai and Wells (2004) conducted a survey of 209 PMO organizations to investigate the relationship between PMO presence and project performance. They found that the presence of certain PMO functions - particularly the ongoing establishment and

reinforcement of project management standards and methods - to be correlated with increased project success (Dai & Wells, 2004).

Dai and Wells (2004) also found that some PMOs report into senior levels of management at the divisional or company level while others report into specific functional leaders (i.e, Finance, Human Resources, Information Technology).

Rad and Levin (2002) offer a list of duties for PMO leaders, excerpts from which are included in Table 1.

Table 1: Selected PMO Leader Responsibilities (Rad & Levin, 2002)

Process	Selected PMO Leader Duties
Administrative Closure	Analyzes lessons learned for improvement to the project management practice
Cost Control	Analyzes lessons learned in cost control for improvements to the project management practice
Information Distribution	Attends project presentations
Integrated Change Control	Establishes a knowledge management system for lessons learned on projects Uses data from the knowledge management system for continuous improvement of project management practices Identifies and appoints project managers
Organizational Planning	Prepares job descriptions for project management positions
Performance Reporting	Conducts project performance reviews
Project Plan Development	Establishes a project management methodology for use throughout the organization
Project Plan Execution	Attends and participates in project status review meetings
Quality Assurance	Conducts quality and project audits Implements quality improvement actions in the project management practices Collects external data on best practices, new ideas, barriers, and risks
Quality Control	Assesses process adjustments in terms of the project management practice
Quality Planning	Participates in benchmarking forums external to the organization Establishes a system for internal benchmarking for projects Establishes checklists for quality planning activities
Schedule Control	Analyzes lessons learned in schedule control for improvements to the project management practice
Schedule Development	Establishes standard project management software for use in the organization Reviews project schedules to identify dependencies across projects
Scope Change Control	Analyzes lessons learned in scope control Uses the results of lessons learned in project scope management for improvements to the project management practice
Scope Planning	Establishes requirements for the scope statement for each project
Team Development	Establishes mentoring relationships Establishes a project reward and recognition system Establishes a project management training program Establishes a project management career path Assesses improvements in individual or team competencies Conducts performance appraisals Analyzes lessons learn for improvement to the project management practice

Problem Statement

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 Schon (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). While PMO leaders and/or project team members may be tasked with taking learning back to the system (Kerzner, 2006; Rad & Levin, 2002), project organization presents unique challenges with respect to embedding this learning and making it available for future projects.

Because project teams disband upon completion of their work, this often means that "the end of a project is consequently the end of collective learning" (Schindler & Eppler, 2003). As Disterer (2002) explains, there is often no "formal corpus" left where existing knowledge can be accessed once the project is over. The temporary and "one-off" nature of projects do not provide the structures necessary to ensure learning is captured and applied by the organization to improve future project performance (Ekstedt, 1999). Project team members return to their line functions or move to other projects after having completed their tasks. The organization risks losing the knowledge gained by the project team, resulting in redundant work, repetition of mistakes, and considerably higher costs on future project endeavors (Schindler & Eppler, 2003).

Antoni et al. (2005) suggest that "One of the most central cost drivers in product development is the unnecessary repetition of activities and mistakes, also colloquially

described as 'reinventions of the wheel'" (p. 877). "Project amnesia" can be particularly devastating for project organizations whose survival depends upon continuous improvement in product and service quality in order to retain customers and win new contracts.

In project-intensive environments, quality and performance are most often defined by the project's ability to meet established customer requirements, cost constraints, and schedule expectations (Rad, 2001). Exploiting the knowledge gained on past projects and building on the experiences of project members to continually improve performance has the potential to improve all three of these measures, thereby improving the organization's competitiveness (Owen, Burstein, & Mitchell, 2004).

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, Bresnen, Edelman, Scarbrough, & Swan, 2006). These "lessons learned" practices 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; 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). These practices have become standard in project management guidelines, yet the research is showing a very bleak state of affairs with respect to their deployment and efficacy. Lessons learned are not always documented and even when

they are, they most often go unused (Antoni et al., 2005; Bresnen, Edelman, Newell, Scarbrough, & Swan, 2003; Keegan & Turner, 2001; Newell, 2004; Newell et al., 2006; Prencipe & Tell, 2001). Even though project management guidelines and many internal company guidelines call for lessons learned to be completed at the end of projects, organizational members express clear dissatisfaction with the process (Keegan & Turner, 2001). Given the barriers identified, Newell, Bresnen, Edelman, Scarbrough, and Swan (2006) call for a re-consideration of the actual practice of lessons learned.

Despite the problems associated with lessons learned practices, two themes have emerged as factors that appear to enable cross-project learning. First, it is clear that social practices, including narration and joint work among communities of practitioners, appears to be more effective than technology-based approaches involving storage, access and retrieval (Antoni et al., 2005; Bresnen et al., 2003; Newell, 2004; Newell et al., 2006; Newell & Swan, 2000; Prencipe & Tell, 2001). Even where technology is involved, organizational members tend to consult with trusted colleagues first in order to identify information that may be useful (Bresnen et al., 2003; Newell et al., 2006).

The second factor emerging from the cross-project learning literature is the conceptual difference between process knowledge and product knowledge (Antoni et al., 2005; Bresnen, Goussevskaia, & Swan, 2005; Newell et al., 2006). Although potentially more difficult to transfer because of its tacit, intangible and context-dependent nature, process knowledge may be more valuable for cross-project learning because of its broader applicability to other project teams. This is in contrast to product knowledge, which tends to be more technical and project-specific (Antoni et al., 2005; Bresnen et al., 2003; Bresnen et al., 2005; Newell, 2004; Newell et al., 2006; Zedtwitz, 2002).

Previous research in cross-project learning has also 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 et al., 2003; Newell et al., 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 noted, "the people that review the project frequently review many other projects and they can pass that information on to other teams." (p. 174).

Dai and Wells (2004) found that 45 percent 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 Christensen (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).

Although managerial intermediaries have been found to play a role in cross project knowledge exchange, the literature has yet to explore how PMO leaders, in their role as intermediaries between project teams and management, attempt to facilitate cross-project learning.

Purpose

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time.

Research Questions

The study was founded on 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?

Research Design Overview

A qualitative research approach was used to study the perceptions and activities of PMO leaders from a variety of industries and functional domains. The research sample is comprised of PMO leaders who (1) have worked as the leader of a PMO for at least six 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." The study includes 20 PMO leaders from a variety of industries, including healthcare, financial services, consumer products, software, management consulting, and airline transport. 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. Although the researcher attempted to focus on representing a heterogeneity of functional domains, a majority (65%) of the PMO leaders who agreed to participate worked within the information technology setting. An approximately equal percentage of men and women were represented.

Participants were interviewed for approximately 60 minutes each. Candidates for interviews were identified through the researcher's contacts. Demographic and contextual material was collected prior to the interview. Data from the interviews was transcribed and coded for themes that helped to answer the research questions.

After findings were compiled from the PMO leader 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 triangulation 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.

Data collection methods included pre-interview questionnaires, interviews, and focus groups. A pilot study including three participants was conducted to refine the

interview protocol and to gauge the length of time required to adequately address the research questions.

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.

Rationale and Significance

The rationale for this study stemmed from the need for organizations to more effectively utilize the knowledge gained from past project success and failure. PMO leaders are responsible, in part, for carrying this knowledge from one project to the next, yet we do not yet understand whether and how they carry out this mission empirically. The significance of this study was twofold. First, it was intended to contribute to the literature on project-based learning which has identified the problems associated with "reinventing the wheel" and "project amnesia" 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 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.

Assumptions of the Study

The researcher held three major assumptions related to the study. First, it was assumed that PMO leaders participate in project reviews and hold informal conversations

with project members across multiple projects. These interactions may provide them with insight into the activities of each of these projects and their associated learning outcomes.

Second, because of their involvement with multiple projects and the resulting insights they may gain, they may play a brokering role in connecting project members for the purpose of cross-project knowledge sharing.

The third major assumption the researcher held is that PMO leaders are engaged in defining and implementing project management standards which may be based in part, on the insights gained from observing project successes and failures within their organization. In some cases, these project management standards may be designed to avoid previous failures and replicate previous successes. Therefore, it was assumed that implementing project management standards may be a means by which PMO leaders transfer lessons learned from one project to the next.

The Researcher

The researcher has served as an external consultant to "Fortune 500"- type companies for approximately 16 years. He holds a bachelor's degree in Industrial Engineering and Operations Research and a Master's degree in Business Administration. His career began with a "Big 8" accounting and consulting firm as a consultant in operations and technology improvement. Since then, the researcher has focused on helping project managers, project teams and business leaders plan and implement organizational improvements in these areas. In some cases the researcher has provided training and/or coaching in project management or in establishing a Project Management Office. The researcher's role as an external consultant is often focused on building organizational capacity. This means that while the researcher does provide expert

perspectives and analyses, the focus is often to facilitate long-term improvements through collaboration and collective learning.

Definition of Terms

Project – "A temporary endeavor undertaken to create a unique product, service or result" (PMI, 2004, p. 368).

Lessons Learned – Collective or individual understandings gained by organizational members from the process of performing or observing a project either during or after its completion, including the perceived reasons for project success and failure.

Project Management – "The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI, 2004, p. 368).

Project Management Office (PMO) – "An organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of a PMO can range from providing project management support functions to actually being responsible for the direct management of a project." (PMI, 2004, p. 369).

Tacit Knowledge – Knowledge that is held by an individual that has not been articulated, codified, or expressed in explicit form (Nonaka & Takeuchi, 1995).

Chapter 2
Literature Review

Introduction

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. The study draws on previous research related to cross-project learning, situated learning and reflective practice. Previous research related to cross-project learning was reviewed in order to understand what organizations have attempted to do to foster learning from one project to the next and to identify the associated barriers and enablers. Theories of situated learning and communities of practice were reviewed in order to develop a theoretical understanding of how PMO leaders might negotiate and share collective understandings of project lessons learned. The chapter concludes with a review of selected literature on reflective practice in the workplace.

Cross-project Learning

The purpose of this section of the literature review was to understand what organizations have already done in their attempt to learn from project experiences and to identify the associated barriers and enablers. The academic literature on cross-project learning has significantly increased in recent years, yet is in its early stages (Prencipe & Tell, 2001). A number of exploratory studies have been conducted that provide a basis from which to address key questions, including the following: How have companies attempted to learn from projects in order to improve future project performance? What are the barriers and enablers that impede or enhance cross-project learning?

Lessons Learned Practices

Having identified the problems associated with learning from projects almost two decades ago, Gulliver (1987) wrote a seminal article titled "Post Project Appraisals Pay" in the Harvard Business Review that describes British Petroleum's approach to learning from one project to the next. He states that the sole mission of the Post Project Appraisal process is "to help British Petroleum worldwide learn from its mistakes and repeat its successes" (p. 128). The process involved investigating the original intent of each project and whether or not that intent was effectively carried out.

Conducting "lessons learned" – also called post-project reviews, after-action reviews, project post-mortems, and debriefings - is now an accepted standard in project management practice (Bresnen et al., 2003; Disterer, 2002; Kotnour, 2000; Prencipe & Tell, 2001; Zedtwitz, 2003). Project management guidelines established by the Project Management Institute currently call for lessons learned to be captured and retained after each project is completed (PMI, 2004). Zedtwitz (2002) claims that post-project reviews are "one of the most structured and most widely applicable approaches to passing on experience from one team to the next" (p. 256).

Although the implementation of lessons learned practices differs by company and group, they often begin by engaging team members in reflective discussions about the reasons for project success or failure, almost always after completion of the project (Disterer, 2002; Kotnour, 2000). These "lessons" are then documented and stored in databases for access and retrieval by others in the organization (Newell, 2004). The objective is to "facilitate continuous learning at all levels within an organization" (Zedtwitz, 2002, p. 256), including the individual, the team and the organization.

Darling, Parry and Moore (2005) describe one such lessons learned practice - the After Action Review (AAR) - developed and implemented by the US Army and now used in part, by companies such as Colgate-Palmolive, DTE Energy, Harley-Davidson and J.M. Huber. AARs are part of a planning and learning cycle that starts before and continues through simulated battles in the deserts of California. The cycle begins with a plan that is drafted by a senior commander of the "opposing force" and includes the task to be completed, the purpose of the task, the commander's intent, and the expected result. These orders are then shared with subordinate commanders who, through a "brief-back," verbally explain their understanding of the order. A rehearsal of the battle is then conducted to ensure each unit has a clear understanding of its battle plan.

Darling et al. (2005) claim that this "before-action planning" helps establish the basis and climate for the After Action Review meeting, which occurs immediately following each phase of the battle. Orders are clarified by subordinates in advance because they know they will be participating in an AAR meeting after the event and will have to publicly discuss what worked and what did not.

The AAR meeting is most often facilitated by the unit leader's executive officer, the second in command. The meeting begins with "a reiteration of the house rules," which include: "Participate. No thin skins. Leave your stripes at the door. Take notes. Focus on our issues, not the issues of those above us [in the hierarchy]." (p. 88). The executive officer reiterates the original mission, intent, and expected outcome. The officer then describes the actual outcome, provides a brief review of events and reviews associated battle-field metrics that relate to the original objective.

AARs focus on improving a unit's own learning and performance (Darling et al., 2005). Four questions are addressed in the AAR meeting: What was the intent? What actually happened? What caused the results? What will we sustain or improve? After the AAR is completed, Army leaders are "accountable for taking lessons from one situation and applying them to others – for forging explicit links between past experience and future performance" (p. 91).

Darling et al. (2005) claim that it would be impractical for companies to adopt these processes in their entirety, yet they suggest that key aspects of the AAR cycle can be utilized to increase competitiveness and prevent the repetition of mistakes. Marsick and Watkins (1999) re-affirm the importance of AARs in the corporate setting, claiming that they can enhance the informal learning of participants engaged in field experiences through "systematic reflection and structured intervention" (p. 76). It is through these processes of public reflection, they claim, that learning can be "shared and moved to a collective level of understanding" (p. 76).

Lessons Learned and Public Reflection

Consistent with Marsick and Watkins' (1999) perspective on the importance of reflection for learning from experience, Raelin (2001) claims that public reflection is the key to "unlocking the learning" from project activities and is the form of reflection that can "enhance learning beyond the project (team) level to other levels of experience – individual, organization, and society" (p. 12). According to Raelin, reflection is defined as "the practice of periodically stepping back to ponder the meaning to self and to others in one's immediate environment about what has recently transpired" (p. 11). Raelin

(2001), like Marsick and Watkins (1999), claims that structured intervention must be provided in order to promote deeper levels of reflection.

Roth and Kleiner (1998) advocate the use of "project learning histories," a narrative form of public reflection, to enhance collective learning. Its main purpose is to generate reflective learning, not just within a project team, but for the organization as a whole. The approach builds upon the traditional practices of lessons learned to "tell an organization its own story." The learning history is "researched through interviews and presented in an engaging fashion [and is] intended to create better conversations that capture and permeate an organization with learning." The authors claim that learning histories "create an environment conducive to collective learning." Learning histories are intended to capture rich descriptions of a team's learning process throughout the project rather than limiting reflection and discussion only to the project's outcomes. "When there is an innovation, people will no longer limit their inquiry to "what did you do?" They will have a built-in infrastructure that makes it easy to ask, "What were you thinking?"

Deployment of Lessons Learned Practices

Despite the wide acknowledgement of the value of conducting lessons learned practices at the end of projects (Disterer, 2002; Marsick & Watkins, 1999; Raelin, 2001; Zedtwitz, 2002, 2003), researchers have found their actual use in project management practice to be mixed. In a survey completed by 62 managers from the US, Europe and Japan representing over 20 R&D organizations, 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.

Schindler and Eppler (2003) conducted action learning research with nine multinational companies and also found that there is a "great discrepancy" between the need for project debriefing and its actual deployment in practice. Additionally, in a review of several empirical studies conducted in IT project environments, Disterer (2002) notes that "Project information is rarely captured, retained, or indexed so that people external to the project can retrieve and apply it to future tasks."

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).

Barriers to Lessons Learned and Cross-project Learning

A review of the cross-project learning literature has yielded four important themes that represent barriers to cross-project learning and the effective use of lessons learned practices. A description of each of these themes follows.

The first barrier to effectively deploying lessons learned practices is the frequent perception among project team members that their project is unique and therefore has limited potential for exploiting or transferring knowledge from and to other projects (Bresnen et al., 2003; Disterer, 2002; Schindler & Eppler, 2003; Sense & Antoni, 2003; Zedtwitz, 2003). Project documents stored on intranets and databases typically represent "deliverables" from project reviews or other project milestones (Bresnen et al., 2003). These deliverables are often project-specific and do not provide contextual information that can facilitate understanding by others outside the project, leading to knowledge

repositories that go unused by prospective project teams (Disterer, 2002; Prencipe & Tell, 2001; Schindler & Eppler, 2003; Skovvang, Christensen, & Bang, 2003; Weiser & Morrison, 1998).

The second barrier to the effective deployment of lessons learned practices are time pressures that reduce or eliminate formal time for learning and reflection (Disterer, 2002; Keegan & Turner, 2001; Schindler & Eppler, 2003; 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 third major barrier to the effective deployment of lessons learned practices is project members' fears related to publicly "airing mistakes" or "pointing the finger" at other team members (Disterer, 2002; Prencipe & Tell, 2001; Schindler & Eppler, 2003; Zedtwitz, 2003). In interviews of 27 R&D managers from 13 multinational companies, for example, Zedtwitz (2002) found that public feedback among team members in post-project reviews is "softened and rendered ineffective" for the sake of smooth cooperation among staff on future projects. Moreover, he found that project members also feared acknowledging issues related to their own performance that might be considered mistakes or failures for fear of embarrassment or threat to their career.

The fourth major barrier found in the cross-project learning literature relates to the tendency to defer learning and reflection activities, if they occur at all, until the close of the project (Ayas & Zeniuk, 2001; Disterer, 2002; Keegan & Turner, 2001; Schindler &

Eppler, 2003; Skovvang et al., 2003; Zedtwitz, 2003). Keegan and Turner (2001), for example, claim that learning "in a reflective manner throughout projects is damaged by [traditional lessons learned] practices that exist to defer learning until projects are completed" (p. 93).

Community versus Cognitive Epistemologies

Newell, Bresnen, Edelman, Scarbrough and Swan (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 which 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).

Oshri, Pan and Newell (2006) demonstrate the negative impact of a "reuse" program designed with the cognitive "knowledge as possession" epistemology as its foundational structure. The researchers used an ethnographic case study approach to analyze a newly introduced knowledge reuse program in the product development process of an Israeli defense product manufacturer. They found that management's efforts to reuse knowledge from past projects in product development had the unintended consequence of stifling expertise development. Before the reuse strategy was introduced, engineers and technicians developed unique, sometimes redundant designs, which led to

"reinventing the wheel." Yet the motivation for learning and collaboration was high, and new engineers were developed through mentoring practices and exploratory learning opportunities.

The authors argue that it was the epistemological assumptions behind how knowledge could be transferred between projects in the reuse strategy that created not only a problem reusing knowledge across projects, but also a problem with fostering individual learning. According to the researchers, the change to a reuse strategy undervalued the situated nature of learning and knowledge sharing. The policy was for project teams to share design templates in knowledge exchange meetings. However, the participants found it very difficult to transmit and incorporate year's worth of problem-solving through codified documents. Management undervalued the impact of social practices such as dialog, storytelling and problem-solving on effectively transferring knowledge from project to project (Oshri et al., 2006).

Because of the ineffectiveness of the "knowledge as possession" model of knowledge exchange, Bresnen, Edelman, Newell, Scarbrough, and Swan (2003) call for a "community-model" of sharing knowledge which "focuses instead upon the tacit dimension of knowledge and, in particular, its embeddedness or stickiness within particular social groupings" and "communities of practice" (p. 159). The community model "focuses on creating and maintaining the conditions required for the production of knowing.... knowledge is context dependent since 'meanings' are interpreted in reference to a particular paradigm." (p. 169). This model can be contrasted with the cognitive model which focuses on the dissemination, imitation and exploitation of knowledge,

which is the predominant epistemology underlying traditional lessons learned approaches (Newell et al., 2006).

The Role of Social Practices

Newell (2004) directly addresses the problem of "reinventing the wheel" on projects by selecting four projects from four different companies to demonstrate the challenges of cross-project learning. The findings provide further evidence of the limitation of traditional lessons learned approaches involving codification and storage on databases. When project members did learn from other project experiences, it tended to occur through conversations with those in their personal networks whom they perceived as able to help with their particular problem. "The main finding was that people either relied on known acquaintances when seeking help or advice or solved the problems in their own through a process of trial and error or learning by doing." (Newell, 2004, p. 17).

Rather than investing in more intranet storage and retrieval systems, claim the authors, "managers need to think strategically about placing people on projects and organizing events that bring individuals from different projects together – not so much to specifically to share learning and knowledge but to develop networks that can facilitate such sharing when the demand is activated by a particular project task." (Newell, 2004, p. 19).

In a study of the intra and cross-project learning practices of nineteen project-based organizations, Keegan and Turner (2001) also found that informal networks were "the most important conduit for transferring learning between individuals and project teams." Indeed, after studying cross-project knowledge transfer in thirteen unrelated

projects across six UK organizations, Newell et al. (2006) suggest that effort put into social practices to facilitate cross-project learning "may be more effective than, or at least a necessary complement to, project documents and codified lessons learnt" (p. 180).

Further, in a study of two product development organizations, Antoni et al. (2005) found that engineers considered "people-centered" vehicles to be more important than codification strategies for transferring improvement knowledge from project to project. Dialogical vehicles for transferring knowledge among people were found to include meetings, workshops with others working on similar projects, story-telling by mentors, and rotational staffing assignments across projects. And because post-project review practices are centered upon codification of lessons learned through a post-project 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).

Further corroboration of these findings can be found in Prencipe and Tell's (2001) study of the mechanisms organizations use to promote cross-project learning. They confirm that "the relationship between the sender and recipient in the knowledge transfer process is paramount [and that] integrative mechanisms, both formal and less formal, facilitate such learning" (p. 1391). As with Newell et al. (2006), the researchers suggest exploring community-based approaches to learning between projects, focusing on how various "communities of practice contribute to, or impair, more formal or technology-based initiatives..." (Prencipe & Tell, 2001, p. 1391).

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" amongst 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).

Ayas (1996) draws on the assumptions of the social nature of situated, tacit knowledge as well as organizational learning theory to describe a structural approach to learning within and between projects. She proposes a network structure model of project organization that was developed, tested and refined through action research with Fokker Aircraft. She claims that "professional" project management enables organizations "continually to enhance the underlying knowledge base—their learning capacity. This implies that all individuals involved in a project are engaged in a constant process of learning, that they transmit their learning to others and the cumulative knowledge acquired is then embodied in the project organization" (Ayas, 1996). The approach is based on the assumption that "continuous improvement in project management involves continuous learning." The Project Network Structure model utilizes social networks as a means for making tacit knowledge explicit among team members on large, dispersed project teams. In subsequent research, Ayers claims that implementation of this approach, in conjunction with a number of other structured "reflective practices" conducted throughout the course of a project, made a tangible impact on reducing costs and cycle time for product development projects and encouraged the company to invest more in the development of its employees (Ayas & Zeniuk, 2001).

Process vs. Product Knowledge

The importance of social practices are even more pronounced when organizations attempt to capture and transfer "process innovations" involving new work practices, roles, responsibilities, attitudes or values (Bresnen et al., 2003).

Process innovations are a form of what Newell et al. (2006) consider to be "process knowledge." Process knowledge, in the context of cross-project learning, relates to processes that a team may have deployed to achieve their goals and includes the reasons why these processes were effective or why they were not (Newell et al., 2006). 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).

This account of the difference between product and process knowledge is consistent with Antoni, Nilsson-Witell, and Dahlgaard (2005) who describe product knowledge as technical, project-specific and often well documented, whereas process knowledge tends to be more diffused in the organization, embedded in routines, and comprised of a greater amount of undocumented, tacit knowledge.

Bresnen et al. (2003) claim that because process knowledge is developed over the course of a project and is often tacit, intangible and context-dependent, it is more difficult to capture and apply. Product knowledge, on the other hand, can be more easily transferred in explicit forms through product design templates, diagrams, maps and other artifacts (Bresnen et al., 2003).

Antoni et al. (2005) found process knowledge to be coded in the form of templates, checklists, manuals and guidelines and that these artifacts were put to use

extensively, representing an accumulation of experience in managing product development projects. Project managers also maintained private diaries that included not only to-do lists, but notes about project occurrences such as how problem-solving was conducted. Engineers considered these diaries to be very important in carrying individual learning from one project to the next (Antoni et al., 2005).

Project Organization and the Dilemma of Process Knowledge

Traditional project management practice typically involves checkpoints to review "deliverables" produced by the project team for the purpose of meeting a project's specific objectives (Kerzner, 2006; Newell et al., 2006). Because project reviews and the completion of project work in general are highly focused on the production of deliverables, product knowledge, although potentially less useful, is what is stored in databases and is most often what is made available for sharing (Newell, 2004). Moreover, Antoni et al. (2005) find that product knowledge "enjoys higher status" than process knowledge among organizational members in their study.

Newell (2004) claims, however, that process knowledge, although more difficult to transfer, may be more useful to other project teams as it "is likely to involve much less technical content and so will be easier for others to absorb" (p. 18). She goes on to say that "...learning from [process knowledge] may enable a team in another project to complete their own tasks more efficiently and effectively" (p. 18). Similarly, Antoni et al. (2005) claim that process knowledge "...can become a practice that can be applicable to most projects most of the time," whereas product knowledge "can vary significantly by application area" and is therefore less useful for a broader audience (p. 880).

The value and privilege associated with product knowledge, combined with the tendency to defer reflection about lessons learned until the end of projects - if at all – creates significant barriers for improving upon previous project experiences. Newell et al. (2006) elaborate on this dilemma: "Things that the team had learned about and changed as they went along simply did not register as 'lessons learned' in post-project reviews because they had already been resolved. What was captured at the level of the project, then, was much more often 'product' knowledge rather than 'process' knowledge" (p. 175).

Summary of the Cross-project Learning Literature

Although the cross-project learning literature is in its early stages, a picture emerges regarding what organizations have done to attempt to learn from project experiences and the barriers associated with these efforts. Lessons learned have become standard in project management guidelines, yet the research is showing a very bleak state of affairs with respect to its deployment and efficacy. Lessons learned are not always documented and even when they are, they most often go unused (Antoni et al., 2005; Bresnen et al., 2003; Keegan & Turner, 2001; Newell, 2004; Newell et al., 2006; Prencipe & Tell, 2001). It is not surprising then, that even though project management guidelines and internal company guidelines call for lessons learned to be completed at the end of projects, organizational members express clear dissatisfaction with the process (Keegan & Turner, 2001). Given the barriers identified, Newell et al. (2006) call for a consideration of the problems with the actual practice of lessons learned.

Two themes have emerged as factors that appear to enable cross-project learning. First, it is clear that social practices, including narration and joint work among

communities of practitioners, appears to be more effective than technology-based approaches involving storage, access and retrieval (Antoni et al., 2005; Bresnen et al., 2003; Newell, 2004; Newell et al., 2006; Newell & Swan, 2000; Prencipe & Tell, 2001). Even where technology is involved, organizational members tend to consult with trusted colleagues first in order to identify information that may be useful (Bresnen et al., 2003; Newell et al., 2006).

The second factor emerging from this literature is the conceptual difference between process knowledge and product knowledge. Although potentially more difficult to transfer because of its tacit, intangible and context-dependent nature, process knowledge may be more valuable for cross-project learning because of its broader applicability for other project members. This is in contrast to product knowledge, which tends to be more technical and project-specific (Antoni et al., 2005; Bresnen et al., 2003; Bresnen et al., 2005; Newell, 2004; Newell et al., 2006; Zedtwitz, 2002).

Situated Learning and Communities of Practice

As noted in the previous section, this study draws on previous research in the areas of cross-project learning and situated learning and communities of practice to investigate PMO leaders' perceptions and activities related to developing and sharing lessons learned. Previous research related to cross-project learning has been reviewed in order to understand what organizations have attempted to do to foster cross-project learning and identify the barriers and enablers associated with these efforts. The cross-project learning literature has pointed to the need to adopt a situated learning approach to cross-project learning that accounts for the socially embedded nature of knowledge and its development within communities of practitioners.

This section begins with a review of Lave and Wenger's (1991) original work on Situated Learning and Legitimate Peripheral Participation. The review then turns to Wenger's (1998) subsequent work in further elaborating the role of "communities of practice" and how they shape learning among shared work practitioners in organizations.

Situated Learning and Legitimate Peripheral Participation

Situated learning and communities of practice have been proposed as fertile ground for further empirical research on cross-project learning (Ayas & Zeniuk, 2001; Kotnour, 2000). Situated learning is founded on the assumption that learning is inherently social and that tools, social activities, and social context shape learning (Hansman, 2001).

In *Situated Learning: Legitimate Peripheral Participation*, Lave and Wenger (1991) argue against a view of learning that focuses on individuals' acquiring, internalizing and transferring knowledge. This traditional view, manifested in schools and classrooms, ignores the fundamentally human issues of meaning and identity and their

inter-connectedness with the social world in which we live our everyday lives. Lave and Wenger (1991) posit an alternative view that locates learning within everyday social contexts, taking place as an aspect of social participation. The theory of legitimate peripheral participation was derived from Lave's studies of craft apprenticeship and was strongly influenced by Marxist theories of social practice, particularly Bourdieu's (1977) social activity theory. The authors describe the development of their theory as a three stage process: 1) from learning as apprenticeship to 2) the concept of situated learning to 3) the concept of legitimate peripheral participation.

Apprenticeship. Lave and Wenger (1991) originally found apprenticeship to be a particularly useful phenomenon for understanding learning. Apprentices develop expertise without the traditional forms of instruction associated with schools, teachers and examinations. It does not entail lesson plans and formal curricula. Instead, the "curriculum" of apprenticeship provides opportunities for observation and participation in ongoing work practices as a way to develop expertise. Motivation emerges from developing competence and contributing to practices that are valued.

Through ethnographic studies of Vai and Gola tailors in Liberia, quartermasters in the U.S. Navy, midwives in the Yucatan, butchers in U.S. supermarkets and non-drinking alcoholics in Alcoholics Anonymous, Lave and Wenger (1991) found concrete examples of how work and learning are seamlessly related and how they shape identity, motivation and meaning within specific social structures.

Importantly, the authors draw on Becker's (1972) work to highlight the "disastrous possibilities that structural constraints in work organizations may curtail or extinguish apprentices' access to the full range of activities of the job, and hence to

possibilities for learning what they need to know to master a trade" (Lave & Wenger, 1991, p. 86). This was evident from the study of U.S. butchers, who sequestered apprentices in separate physical spaces, disabling their capacity to learn from the "masters."

Situated Learning. In addition to building on their and others' studies of apprenticeship, Lave and Wenger (1991) report that their theory also emerged out of the need to overcome confusion over what was meant by "situated learning." They identified a number of conceptions of situated learning with which they disagreed. The first conception of situated learning the authors reject is one that simply locates learners in a particular setting. This simplistic notion fails to explain why the particular setting matters for the learner. The second notion is that learning simply takes place within a social context. This is also inadequate in its explanation of the relation of the social context to learning. A third notion, one in which situated learning is seen as synonymous with "learning by doing" outside of traditional school contexts, fails to locate schools as specific contexts themselves. As Lave later explains, all learning is in context. "Decontextualized learning" is a contradiction in terms (Lave, 1993).

A final notion of situated learning Lave and Wenger (1991) reject is one that sees learning as only specific to a given time or task. The authors agree that learning is sometimes limited to specific situations. However, they argue that general knowledge can also emanate from specific situations. Stories, for example, are concrete understandings that can relate to a specific context yet can be applied in other practice settings. The authors believe, therefore, that knowledge can be transferable from one situation, setting or context to another, although this may not always be the case.

For Lave and Wenger (1991), the development of a theory of situated learning became more complex than the above interpretations. Their conception viewed situated learning as "the basis of claims about the relational character of knowledge and learning, about the negotiated character of meaning, and about the concerned (engaged, dilemma-driven) nature of learning activity for the people involved" (p. 33). In this view, "agent, activity and the world mutually constitute each other" (p. 33).

This view is consistent with Hansman (2001), who describes situated learning as "people learning as they participate and become intimately involved with a community or culture of learning, interacting with the community and learning to understand and participate in its history, assumptions and cultural values and rules" (p. 45).

Legitimate Peripheral Participation. Lave and Wenger's (1991) view of situated learning served as a transition from viewing learning as a cognitive process to viewing learning as an inseparable aspect of social practice. Their notion of situated learning was a bridge to the development of a "specific analytic approach to learning" (p. 35) they called legitimate peripheral participation. This evolution in their thinking highlights *how* people learn as they take action within communities of practitioners. Mastery of knowledge and skill is achieved when newcomers to the community move toward full participation in the practices entailed in that community. Legitimacy depends on whether or not a newcomer's participation is sanctioned by the community. As Wenger (1998) states, legitimacy can take many forms including "being useful, being sponsored, being feared, being the right kind of person, having the right birth" (p. 101).

Legitimate peripheral participation "suggests that there are multiple, varied, more –or less-engaged and –inclusive ways of being located in the fields of participation defined by a community." (p. 36).

Communities of Practice

Wenger, McDermott and Snyder (2002) 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). They observe that communities of practice are "in the best position to codify knowledge, because they can combine its tacit and explicit aspects" (p. 9).

In *Communities of Practice: Learning, Meaning and Identity*, Wenger (1998) expounds on the concept of Communities Practice to further develop a social theory of learning. In this expanded account, practice is seen as an element of four key dimensions of Wenger's theory: as the basis for the social production of meaning, the source of coherence in a community, as a learning process, and as the source of boundaries between inter-linked communities at both the local and societal levels. Each of Wenger's dimensions of practice will now be described in relation to how PMO leaders might learn from project successes and failures within their organization.

Practice as the Basis for the Production of Meaning. Through practice, our lives become meaningful (Wenger, 1998). As Wenger (1998) claims, "Whether we are talking, acting, thinking, solving problems, or daydreaming, we are concerned with meanings" (p. 53). As we live our lives, we are constantly undergoing the process of negotiating meaning. We are linked to the history of our communities by the structures and ways of being previously established, yet we are not bound by them. We are able to negotiate new

meaning through the convergence of two processes that continually interact with one another: participation and reification. These processes form a duality that is "fundamental to the negotiation of meaning." Participation refers to our interactions with others and our ongoing activities as we live and work. The concept of participation is meant to convey the "profoundly social character of our experience of life."

Reification, the other half of the duality through which we negotiate meaning, refers to the "process of giving form to our experience by producing objects that congeal this experience into 'thingness'"(Wenger, 1998, p. 58). The process of reification "produces abstractions, tools, symbols, stories, terms, and concepts that reify something of that practice in a congealed form" (p. 59). It is through the process of reification that forms can "take a life of their own, beyond their context of origin." This account is consistent with Newell et al's (2006) claim 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).

In this view, we would expect to see PMO leaders engaged in forms of social participation that involve tools, stories, and templates to conduct their work.

Practice as the Source of Community Coherence. Through practice, communities develop coherence. Wenger (1998) defines three characteristics of practice that relate to community coherence. The first is mutual engagement. Practice exists because community members engage in actions through which they negotiate meaning. Membership in a community of practice is premised upon mutual engagement.

The second characteristic of practice that relates to community coherence is joint enterprise. Joint enterprise goes beyond stated goals such as mission statements or

objectives. It is defined and continuously renegotiated by participants as they respond to their situation. Joint enterprise is what creates mutual accountability among community members. It is a "...resource of coordination, of sense-making, of mutual engagement; it is like rhythm to music" (p. 82). Claims processing is an example of a joint enterprise through which claims processors engage one another in a shared practice.

The third dimension of practice that creates community coherence is a shared repertoire. Over time, Wenger claims, "the joint pursuit of an enterprise creates resources for negotiating meaning" (p. 82). These resources are products of the previously described interplay of reification and participation processes through which members negotiate meaning. They include "routines, words, tools, ways of doing things, stories, gestures, symbols...that the community has produced or adopted in the course of its existence, and which have become part of its practice" (p. 83).

The combination of these three dimensions of community coherence – mutual engagement, joint enterprise, and shared repertoire – have the potential to create a "social energy" that binds community members. The social energy generated by the community can on the one hand "give rise to an experience of meaningfulness" and on the other hand, can "hold us hostages to that experience" (p. 85). As Wenger states:

> The local coherence of a community of practice can be both a strength and a weakness. The indigenous production of practice makes communities of practice the locus of creative achievements and the locus of inbred failures; the locus of resistance to oppression and the locus of the reproduction of its conditions; the cradle of the self but also the potential cage of the soul (Wenger, 1998, p. 85).

Practice as a Learning Process. Through practice, communities also learn. With time and sustained mutual engagement in a joint enterprise, the interplay of participation and reification produces what Wenger (1998) calls a "shared history of learning."

Reification "yields a memory of forms that allows our engagement in practice to leave enduring imprints in the world" (Wenger, 1998, p. 88). Participation, on the other hand, affords opportunities for collecting individual memories. It is through participation that we become who we are - how we fashion our identities - and "recognize ourselves in our past" (Wenger, 1998, p. 88). The products of reification and participation thus create a shared history of learning that is manifested in the world through shared language, stories, physical objects, memories. The resulting history of shared learning created is a source of learning for newcomers to the community as they engage in Legitimate Peripheral Participation (Lave & Wenger, 1991).

Because of their residual historical effects, reification and participation offer two paths for community members in their attempts to shape the future: "1) You can seek, cultivate, or avoid specific relationships with specific people. 2) You can produce or promote specific artifacts to focus future negotiation of meaning in specific ways" (Wenger, 1998, p. 91). Because of their ability to shape collective history and the agency this affords for community members, participation and reification are distinct channels of power. As such, Wenger describes a distinct form of politics associated with each of them. "The politics of participation includes influence, personal authority, nepotism, rampant discrimination, charisma, trust, friendship, ambition...Of a different nature are the politics of reification, which include legislation, policies, institutionally defined authority, expositions, argumentative demonstrations, statistics, contracts, plans, designs" (Wenger, 1998, p. 92).

As members come and go, as the world changes, and as participants attempt to shape shared practices in these ways, learning takes place and the community's history is

renegotiated. For Wenger (1998), all learning takes place within the context of communities that share history, are mutually engaged, have a joint enterprise, and a shared repertoire. And it is along these dimensions that learning is manifested:

- Forms of mutual engagement evolve. These include "discovering how to engage, what helps and what hinders; developing mutual relationships; defining identities, establishing who is who, who is good at what, who knows what, who is easy or hard to get along with" (Wenger, 1998, p. 95).
- Joint enterprise is renegotiated and tuned by the community. This includes "aligning their engagement with it, and learning to become and hold each other accountable to it; struggling to define the enterprise and reconciling conflicting interpretations of what the enterprise is about." (Wenger, 1998, p. 95).
- Shared repertoire is developed and refined. This includes "renegotiating the meaning of various elements; producing or adopting tools, artifacts, representations; recording and recalling events; inventing new terms and redefining or abandoning old ones; telling and retelling stories; creating and breaking routines" (Wenger, 1998, p. 95).

Practice as the source of boundaries between inter-linked communities. Through practice, boundaries are created between communities. Economies, countries, organizations and even neighborhoods consist of a multitude of communities of practice. Wenger (1998) claims these larger units of analysis can be viewed as a "constellation" of interconnected practices. Shared histories of learning in a community also include articulations of how a community engages those external to it. Yet shared histories not

only create discontinuities across boundaries, they can also create continuities across boundaries through "boundary objects" and "brokering."

Boundary objects are products of reification - artifacts, documents, terms, concepts, stories - that organize interconnections among communities. To the extent that products of reification belong to multiple practices, "they are a nexus of perspectives and thus carry the potential of becoming boundary objects if those perspectives need to be coordinated" (Wenger, 1998, p. 107). 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.

Brokering is the process of establishing connections between communities by "introducing elements of one practice into another" (Wenger, 1998, p. 105). Project managers leading cross-functional projects, for example, may belong to a community of project management professionals associated with a PMO as well as a community of engineers within which their career progressed. Likewise, PMO leaders themselves might participate in a community of project management professionals while engaging managers and business leaders responsible for running a business unit. Both the project manager and the PMO leader in this case have the potential to broker new connections between practices and "...if they are good brokers - open new possibilities for meaning" (Wenger, 1998, p. 109).

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).

Hansen's (1999) study of network ties in 41 divisions or a large R&D organization also reinforces the importance of brokers who can span multiple communities of practice. She sought to understand more about how the strength of social network "ties" between organizational units impacted their ability to share knowledge. Consistent with Wenger's communities of practice, strong ties between units, characterized by "close and frequent interactions" were found to be more important when the knowledge is highly complex, non-codified and dependent. Weak ties, on the other hand, characterized by "distant and infrequent interactions" were more important for knowledge sharing when the knowledge was non-complex, highly codified, and less dependent on context, supporting the key role of brokers and boundary-spanners in knowledge exchange processes.

The Challenges of Brokering. Wenger (1998) characterizes brokering as a complex process that involves translation, coordination, and alignment between perspectives. He elaborates further on the role and competencies required of brokers if they are to facilitate learning:

> It 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. As a result, "brokers sometimes interpret the uprootedness associated with brokering in personal terms of individual adequacy" (Wenger, 1998, p. 110). Brokering, therefore, requires an ability to "manage carefully the coexistence of

membership and non-membership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to" (Wenger, 1998, p. 110).

Boundary Encounters. Wenger (1998) describes three types of "boundary encounters," defined as "single or discrete events that provide connections" across practices (p. 113). The first such boundary encounter type is a one-on-one meeting, where conversations between two "interlocutors" allow private matters to be discussed in more candid ways. The downside of this type of encounter is that the connection created is "hostage to the partiality of each interlocutor" (Wenger, 1998, p. 112). That is because no single member of either community could be fully representative of their communities practices, nor is their memory capable of covering such ground with perfection. Moreover, they cannot fully act in isolation as they would as they participate in the milieu of everyday practice.

The second type of boundary encounter is immersion in a practice by visiting the site at which the activity takes place. This provides a more comprehensive perspective on the practices of the host and how members engage one another. The downside of this approach is that the connection is one-way: the host is unlikely to learn much about how visitors function in the host's environment.

The third type of boundary encounter involves delegations from each practice meeting simultaneously. There are two advantages to this approach. First, the negotiation (of meaning) process can occur within and across the delegations at the same time. Second, the process allows each community to see how the other negotiates meaning. The downside of delegation encounters is that "participants may cling to their own internal relations, perspectives, and ways of thinking."

Boundary Practices. If boundary encounters become an ongoing forum for mutual engagement across practice boundaries, Wenger (1998) claims that a practice is likely to start emerging, particularly if delegations are involved. The enterprise of the boundary practice is to "sustain a connection between a number of other practices by addressing conflicts, reconciling perspectives, and finding resolutions" (p. 114). The resulting practice becomes a form of "collective brokering." As with practice in general, the interplay of participation and reification help participants negotiate meaning and overcome the problems associated with isolated boundary objects or brokers, either of which can inhibit meaning-making.

Project Environments and Communities of Practice. Ayas and Zeniuk (2001) claim that communities of practice in project-based organizations offer an "excellent opportunity to engage in learning" at the individual, organizational and societal levels. They suggest that temporary membership on projects enable project team members to engage in multiple communities of practice and to build and cultivate relationships over the course of their work within and across projects. Multi-membership in communities of practice, claim the authors, contributes to "creating informal webs of people who act as knowledge brokers" across practice boundaries (Ayas & Zeniuk, 2001, p. 71). They go on to argue that:

> Project-based organizations may grow into constellations of interrelated communities of practice, offering a web of mutual support for cultivating reflective practices. When projects share members, they are bound together and become embedded in the same social network. The recursive interaction among projects creates social networks of mutual assistance. (Ayas & Zeniuk, 2001, p. 72)

Through four case studies and reflective workshops with members from twenty projects in separate companies, Arthur, DeFillippi and Jones (2001) also found

communities of practice to be an important mechanism for promoting project-based learning within and between projects. By nurturing communities of practice, they claim, organizations can provide access to knowledge among community members that can "endure after formal project-based activities cease," providing a "continuing source of new information, wherever the project members are presently located (p. 113).

Limitations of Communities of Practice in Relation to Cross-project Learning. Although communities of practice offer a lens into how PMO leaders might negotiate and share project lessons learned, two inhibiting factors of communities of practice in relation to cross-project learning merit consideration. The first limitation is identified by Wenger, who recognizes that as communities develop greater coherence, their boundaries with "outsiders" may become stronger, which may inhibit the introduction of new knowledge into their practice (Wenger, 1998). In a comparative case study of two construction projects, Scarbrough, Swan, Laurent and Bresnen (2004) conclude that as deeper and unique knowledge is developed at the project level through shared practice, it is exactly this new division of practice between the project and the permanent organization that makes it more difficult to transfer the knowledge to others.

The second limitation of communities of practice with respect to cross-project learning relates to the nature of the learning that takes place among practitioners (Lave & Wenger, 1991). Marsick (2000) characterizes situated learning and legitimate peripheral participation 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). A brief review of selected literature on reflective practice in the workplace is therefore presented in order to augment Wenger's theory as it relates to cross-project learning.

Reflective Practice

In his book Educating the Reflective Practitioner, Schon (1990) demonstrates how reflection plays an important role in the development of "professional artistry," the "kinds of competences practitioners sometimes display in unique, uncertain, and conflicted situations of practice" (p. 22). He distinguishes this type of competence from competence that is based solely on the application of the explicit rules and guidelines of one's profession. Professional artistry, according to Schon (1990), involves the application of tacit knowledge, described by Polanyi (1967) as that which we know but cannot express readily in words.

Despite the tacit nature of our "knowing-in-action," as displayed publicly through physical performances, Schon (1990) claims that "it is sometimes possible, by observing and reflecting on our actions, to make a description of the tacit knowing implicit in [these actions]" (p. 25).

Schon's (1990) view of the reflection process begins when the application of our know-how does not produce the expected results, in which case we become surprised that our actions failed to meet our expectations. After experiencing a surprise, we may ignore it or we may respond to it by reflecting in one of two ways. We may reflect on action by

stepping away from the action and thinking back on our experience to understand how our knowing-in-action contributed to an unexpected outcome. Alternatively, we may "reflect in the midst of action without interrupting it" (p. 26). Schon refers to the former as "reflecting on action" and the latter as "reflection-in-action."

When we reflect, we question the assumptions behind our knowing-in-action and "think critically about the thinking that got us into this fix or this opportunity; and we may, in the process, restructure strategies of action, understandings of phenomena, or ways of framing problems" (Schön, 1990, p. 28).

Like Schon (1990), 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.

Consistent with Raelin's (2001) claim that public reflection is the key to "unlocking the learning" from project activities, Cressey, Boud and Docherty (2006) position reflection as a means to enhance informal learning among communities of practitioners in the workplace. They claim that the application of reflection at work had previously been "the province of vocational training practitioners and discussed in terms

of the training of individuals in the workforce" (p. 9). Yet two factors have created greater recognition of the need for productive reflection. First, informal learning has become recognized as a vitally important aspect of workplace learning. It has moved beyond its traditional role as a means to prepare professionals for the workforce and into the province of ongoing executive development through practices such as action learning, which was originally conceived by Revans (1971). The authors claim that this is because "issues of competence development cannot now be seen as separated from organizational and workplace practice" (Cressey et al., 2006, p. 12). The second factor influencing the increased recognition of the need for reflection in the workplace has been the organizational learning movement of the 1990s, where group reflection is viewed as a cornerstone of organizational learning (Cressey et al., 2006).

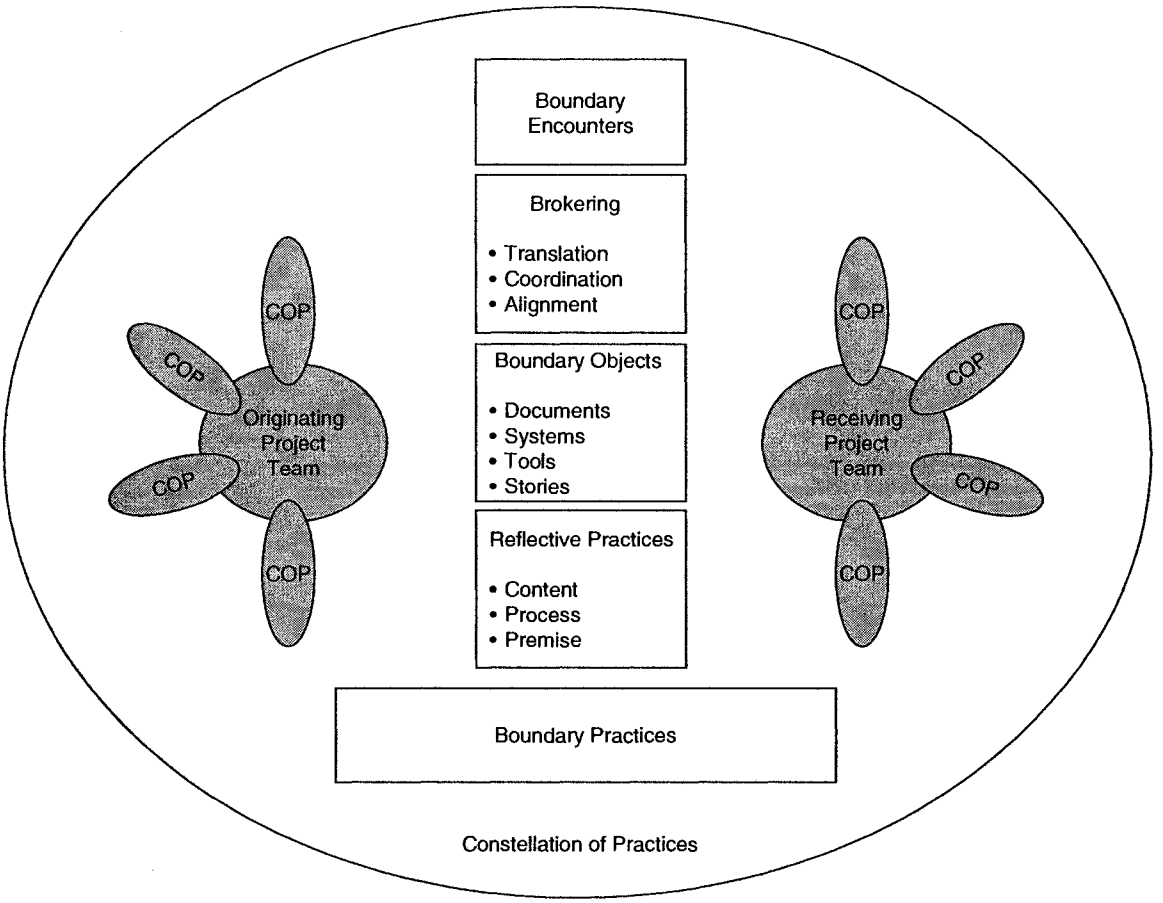
"Productive reflection," as defined by Cressey et al. (2006) has six key features. First, its outcomes are focused on the organization rather than the individual; it is collective rather than individual in its orientation. In the author's words, "productive reflection as we express it is focused on reflection to lead to action with and for others and for the benefit of the organization as well as the participants..." (p. 20). The second feature of productive reflection is that it takes place within the work environment and connects learning and work. In this view, work drives the reflection and frames what is legitimate. The third feature of productive reflection is that it can involve stakeholders at all levels, seeking to connect these stakeholders rather than isolate them within their own perspectives. Fourth, productive reflection is generative rather than instrumental in its focus. By this, the authors mean that productive reflection cannot be controlled in a way that leads to pre-determined outcomes. It is exploratory and generative and cannot be

reduced to "just another technique" (Cressey et al., 2006, p. 22). The fifth feature of productive reflection is that it is developmental in character. It "is part of a range of organizational practices designed simultaneously to contribute to solving [the] organizational problems of today while equipping members of the organization to be better able to deal with challenges that face them in the future." (Cressey et al., 2006, p. 22). The sixth and final feature of productive reflection, according to the authors, is that it is an open, unpredictable process that is dynamic and changes over time. That is, it cannot be predicted in advance where it will lead and therefore necessarily has unintended consequences. Moreover, productive reflection practices may change over time from one stage to another within the same environment depending on the circumstances and context.

Conceptual Framework

The conceptual framework for this study draws upon Wenger's (1998) theory of situated learning and communities of practice, previous studies from the cross-project learning literature, and selected literature on workplace reflection (Mezirow, 1991). Following Figure 1 below is a narrative description of the conceptual framework.

Figure 1: Conceptual Framework



The PMO Leader as Embedded within a Constellation of Practices

Wenger (1998) views organizations as constituted by multiple communities of practice where knowledge is viewed 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" 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

Wenger (1998) views cross-functional project teams as consisting of members who may themselves belong to various communities of practice. Sense (2003) shares this view, and goes on to argue 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 Leaders as Brokers across Communities of Practice

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; and the primary motivation for establishing these PMOs was to improve performance at the project team level. Additionally, over ninety percent of the PMOs in their study had full-time staff, suggesting that PMO groups themselves may establish a community of practice.

PMO leaders can therefore be viewed as spanning at least three or more communities: 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.

Boundary Encounters

Given the boundary-spanning role of the PMO leader, the conceptual framework depicts boundary encounters – single or discrete events that provide practice connections between community members (Wenger, 1998) - as one of the ways in which PMO leaders might negotiate or share collective understandings of project lessons learned.

Brokering

Adopting Wenger's (1998) view on practice boundaries, we would expect PMO leaders to be engaged in brokering - the process of establishing connections between communities by "introducing elements of one practice into another" through processes of translation, coordination, and alignment among and between these perspectives (p. 105). Translation processes as defined in this research involve the rendering of something written or spoken in one community's words into the language and practices embodied in another community. Coordination processes involve facilitating connections and transactions between communities and community members. Alignment processes as defined in this research involve addressing and resolving conflicting interests among two or more communities of practice (Wenger, 1998).

Boundary Objects

We would also expect that PMO leaders might engage in developing and/or utilizing boundary objects - documents, systems, tools, or stories that organize interconnections between communities during such boundary encounters. The brokering role of PMO leaders is further supported by Dai and Wells' (2004) suggestion that PMOs are being used as "facilitative units rather than as another line of directive management" (p. 4).

Reflective Practices

As described previously, the informal and incidental nature of the learning that takes place within and between communities of practice underscores the need for public reflective practices where participants, including boundary-spanners such as PMO leaders, can reflect on the content, process and premise of recent activities with a focus on improving future actions (Cressey et al., 2006; Mezirow, 1991; Raelin, 2001). Reflective practices are therefore represented in the conceptual framework as a means by which PMO leaders might negotiate and transfer lessons learned from one project to the next. As noted previously, Mezirow (1991) conceives of content reflection as involving the review of how ideas have been applied in solving problems at each stage of a problem solving process; process reflection examines the problem solving process itself, focusing on the procedures and assumptions involved in previous application; premise reflection involves uncovering and understanding the assumptions that guided the need to address the problem in the first place.

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). It could be argued, for example, that the establishment of project management standards and practices – a primary objective for PMOs (Dai & Wells, 2004; Kerzner, 2004; Rad & Levin, 2002) –

can be viewed as a type of boundary practice between management, project teams and the PMO.

Boundary practices are seen as a form of process knowledge, recognized by cross-project learning researchers as a form of knowledge that has potential to be shared and applied more broadly across projects (Antoni et al., 2005; Bresnen et al., 2003; Newell, 2004; Newell et al., 2006). Boundary practices can therefore be viewed as mechanisms by which "lessons learned" are transferred from one project to another. If PMO leaders do in fact incorporate lessons learned into new project management standards and practices as Dai (2002), Kerzner (2006), and Rad and Levin (2002) expect, then newly established project managers and project teams might experience these boundary practices, with previous lessons "built in," as a form of legitimate peripheral participation (Lave & Wenger, 1991). This view is supported by Wenger's (1998) central premise that practice results in the development of a shared history of learning. This shared history of learning can provide an opportunity for legitimate peripheral participation as project team members plan and implement approaches to solving new problems and managing newly established projects.

PMO leaders might also negotiate and share project lessons learned as they participate in previously established boundary practice routines. We would therefore expect boundary practices to be both a means for PMO leaders to negotiate collective understandings of lessons learned and a mechanism by which they share this knowledge from one project to the next.

Summary of Chapter 2

The purpose of this study was to shed light on the processes by which PMO leaders negotiate and share collective understandings of project lessons learned in order to continuously improve project performance from one project to the next. Previous research related to cross-project learning has been reviewed in order to understand what organizations have attempted to do to foster cross-project learning and to identify the associated barriers and enablers. The cross-project learning literature pointed to the need to adopt a situated learning approach to cross-project learning that accounts for the socially embedded nature of knowledge and its development within communities of practitioners. Lave and Wenger's (1991) and Wenger's (1998) theories of situated learning and communities of practice have been reviewed in order to develop a theoretical understanding of how PMO leaders might negotiate and share project lessons learned. Finally, selected literature on reflective practice in the workplace was reviewed in order to address the limitations in Wenger's theory related to enhancing informal learning.

A conceptual framework was constructed that views PMO leaders as boundary-spanners who engage with a constellation of practices within their organization to construct meaning about the reasons for project success and failure. Boundary encounters provide a venue for PMO leaders to broker among communities of practice and utilize boundary objects to negotiate new understandings about the reasons for project success and failure. To the extent that boundary encounters are sustained, PMO leaders are seen as able to both negotiate and share applicable knowledge across teams through the development of boundary practices.

The conceptual framework was used as a basis for developing the research methodology, including data collection and data analysis approaches to be described in Chapter 3.

Chapter 3
Methodology

Introduction

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. The study's research questions were as follows: (1) What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another? (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?

This chapter describes the research methodology utilized to address the purpose and research questions, including (a) rationale for a qualitative research approach; (b) areas of information needed; (c) the sample; (d) overview of the research design; (e) methods for data collection; (f) methods for data analysis; (g) rationale for the research design and methods selection; (h) issues of trustworthiness and; (i) study limitations.

Rationale for a Qualitative Research Approach

As Denzin and Lincoln suggest, "the choice of research practices depends upon the questions that are asked" (1998, p. 3). The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. This research purpose and the associated research questions required that the researcher elicit and explore the meanings participants ascribed to their experiences from their own perspective through a qualitative research design.

Qualitative research stresses the socially constructed nature of reality and focuses on understanding the processes by which phenomena are constructed and understood, the contexts within which these constructions emerge, and the need for researcher and participant to interact in order to co-construct meaning from these processes and contexts (Creswell, 2003; Denzin & Lincoln, 1998; Merriam, 1998; Miles & Huberman, 1994; Patton, 1990; Strauss & Corbin, 1998). This is in contrast to quantitative research approaches whereby hypotheses and deduction drive the research process, empirical observation is employed to identify "undisputable" facts and outcomes, and research is considered valid when it can be replicated and generalized to larger populations (Connell & Nord, 1996; Guba & Lincoln, 1998).

Merriam (1998) explains that qualitative research often involves seeking to discover and understand "a phenomenon, a process, or the perspectives and worldviews of the people involved" where findings are represented through a mix of description and analysis that draws upon concepts from a theoretical framework (p. 11). Analysis usually results in the identification of recurring patterns that "cut through the data" (Merriam, 1998).

This study's conceptual framework emphasized the situated, negotiated, contested nature of knowledge as it is developed among communities of practitioners (Wenger, 1998). This framework's fundamental assumptions about the socially constructed nature of reality and its embeddedness within social groupings is consistent with a constructivist paradigmatic viewpoint, whose ontological position is "relativist" and assumes that realities are "socially and experientially based," local and specific and "dependent for

their form and content on the individual persons or groups holding the constructions" (Denzin & Lincoln, 1998, p. 206).

This fundamental viewpoint underlying the research therefore does not assume there is an objective reality that is "out there" waiting to be discovered by the researcher (Merriam, 1998). What can be constructed by the researcher is "literally created" with participants as the investigation proceeds (Denzin & Lincoln, 1998). Meaning from the investigation "can be elicited and refined only through interaction between and among investigator and respondents" (Denzin & Lincoln, 1998, p. 207).

The final aim of constructivist research is to "distill a consensus construction that is more informed and sophisticated than any of the predecessor constructions" (Denzin & Lincoln, 1998, p. 207). Consistent with this aim, this research made use of multiple methods to "triangulate" the data in order to "secure an in-depth understanding of the phenomenon in question" (Merriam, 1998, p. 4).

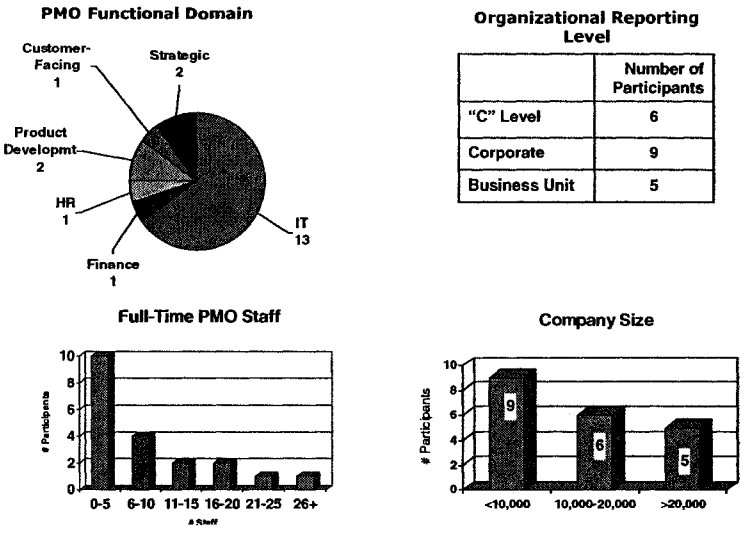
As Denzin and Lincoln (1998) argue, "the word qualitative implies an emphasis on processes and meanings that are not rigorously examined or measured (if measured at all), in terms of quantity, amount, intensity, or frequency" (p. 8). A qualitative research approach was most suited for this study, as its purpose was to understand the perceptions and activities of participants and to derive meaning from their everyday experiences.

The Sample

This study sought to investigate the perceptions and activities of a sample of PMO leaders from a variety of industries and functional domains in order to (1) increase the transferability of the findings across function and industry and (2) ensure that no one person/company was identifiable within the results. The study includes 20 PMO leaders

from a variety of industries, including healthcare, financial services, consumer products, software, management consulting, and airline transport. As shown in Figure 2 below, 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. Although the researcher attempted to focus on representing a heterogeneity of functional domains, a majority (65%) of the PMO leaders who agreed to participate worked within the information technology setting. An approximately equal percentage of men and women were represented. Additional sample demographics are presented in Appendix A.

Figure 2: Sample Description



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 know who meet the selection criteria.

In order to qualify for the study, a prospective participant must: (1) have worked as the leader of a PMO for at least six 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."

Prospective participants were sent a Letter of Invitation (see Appendix B). Criteria for inclusion in this research were outlined in the Letter of Invitation. Examples of the types of project environments that were represented in the study include information technology, research & development, and product development.

Areas of Information Needed

To investigate this study's four core research questions, contextual, demographic and perceptual information were collected from the following data sources: (1) pre-interview questionnaires; (2) participant interviews; and (3) focus groups. Table 2 below provides a summary of the information collected by data source.

Table 2: Areas of Information Needed

Areas of Information Needed	Pre-Interview Questionnaire	Interview	Focus Groups
Demographic			
Gender	X		
Age	X		
Years as PMO leader	X		
Contextual			
Company name	X		
Title of supervisor	X		
Number employees in company	X		
Number Full-time staff in PMO	X		
Number of projects supported	X		
PMO mission, goals and activities	X	X	
Job role description	X	X	
Respondent's work history	X		
Perceptual			
Research Question 1: What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another?			X
Interview protocol:			
1. Can you describe the mission and/or goals of your group?		X	
2. Can you briefly describe the types of			

Areas of Information Needed	Pre-Interview Questionnaire	Interview	Focus Groups
activities in which your group engages to carry out its mission and goals?		X	
3. Where does your organization report to within the formal organization structure?		X	
4. What are the expectations of your boss with respect to improving performance from one project to the next?		X	
5. What are the expectations of your boss with respect to identifying lessons learned and/or spreading internal best practices from previous project activities?		X	
Research Question 2: How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects? Interview Protocol:			X
7. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to understand why a project succeeded or failed?		X	
Research Question 3: How do PMO leaders attempt to share lessons learned from one project for the benefit of future projects? Interview Protocol:			X
8. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to share lessons learned from one project for the benefit of another?		X	
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? Interview Protocol:			X
7. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to understand why a project succeeded or failed?		X	
8. Thinking back on the life of the group, are there specific situations that stand out where you or your team attempted to share lessons learned from one project for the benefit of another?		X	

Demographic Information

Basic demographic information were gathered from participants in this study, including age, gender, and years in current position. Sample demographics are presented in Appendix A.

Contextual Information

For each participant, contextual information collected included a description of the respondent's company and work environment, including the mission, goals and activities of the PMO, the respondent's job role description, the title of the PMO Leader's direct supervisor, the number of employees in the unit/division, the number of full-time PMO staff, the number of current projects served, and the respondent's prior work history. This information provided insight into the scale and scope of the respondent's work environment, formal responsibilities and hierarchical position.

Perceptual Information

The study's four research questions, the literature review and the conceptual framework guided the perceptual information to be gathered in this study. Wenger (1998) and Lave and Wenger's (1991) theories of communities of practice and legitimate peripheral participation form the basis of the conceptual framework relating to how PMO leaders might help their organizations learn from past project experiences for the benefit of current and future projects. In this conceptual framework, PMO leaders were viewed as boundary-spanners who engage in boundary encounters, brokering, boundary objects and boundary practices to make meaning of experiences across communities of practice. PMO leaders may also engage in reflective practices that focus on the content, process

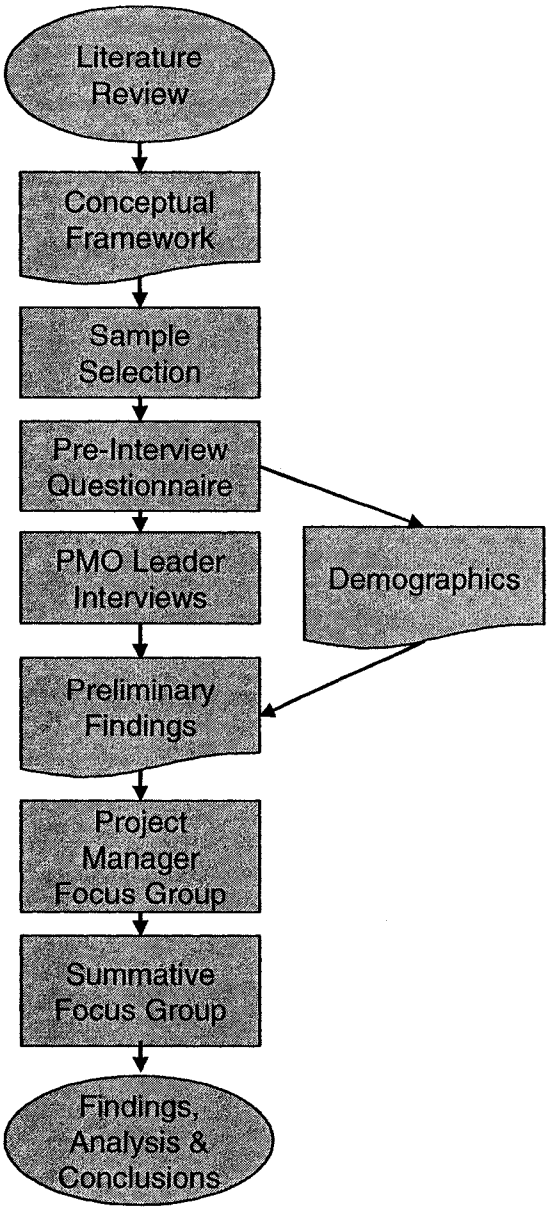
and/or premise associated with project activities in order to learn from past project experiences (Mezirow, 1991; Raelin, 2001).

Interviews with PMO leaders, based on an interview schedule derived from the literature review and conceptual framework, provided information to address the research questions. After interviews were completed and findings were compiled, a focus group of project managers (non-PMO leaders) was conducted to provide triangulation of the PMO leader interview data. Finally, a summative focus group with six of the PMO leaders interviewed was conducted to provide a member check and expand upon the study's findings.

Overview of Research Design

This was a qualitative study of the perceptions and activities of PMO leaders as they relate to cross-project learning. Figure 3 below depicts the overall flow of the research process.

Figure 3: Research Activity Flow



The following procedures were used to complete the study:

1. Previous research related to cross-project learning was reviewed in order to understand what organizations have attempted to do to foster cross-project learning and to identify the associated barriers and enablers. Theories of situated learning and communities of practice were reviewed in order to develop a theoretical understanding of how PMO leaders help their organizations learn from past project experiences. Selected literature on reflective practice was reviewed in order to address limitations related to enhancing informal learning in Wenger's (1998) situated learning theory.
2. Once the study was designed and the proposal approved, the researcher submitted the study to the Teachers College IRB. The study's protocol and instruments were subsequently approved.
3. Potential participants were contacted through a Letter of Invitation (see Appendix B). The letter outlined the purpose of the research, the time required, and the educational institution with which the research is affiliated.
4. Confirmed participants were sent a Pre-interview Questionnaire (see Appendix C) which requested the contextual information outlined in Table 2. Participants were asked to provide a document that described their work history so that the researcher could understand more about their background and history prior to the conversation. Confirmed PMO leader participants were also asked to sign a PMO Leader Research Informed

Consent form (see Appendix D) which explained the confidentiality of their responses, the purpose of the study, the data collection methods, and their rights as a research participant.

5. Interviews took place primarily by phone to accommodate participants' schedules and to extend the geographic reach of the study. The interviews lasted approximately 60 minutes and were semi-structured. Each participant was asked for consent to tape record the interview. Conversations were then recorded and transcribed in their entirety by a transcription service. Following the interview, participants were sent a Thank You letter (see Appendix E).

6. Interview transcripts were coded based on initial codes derived from the conceptual framework. Additional codes were identified where patterns emerged. Inter-rater reliability was sought with fellow doctoral candidates in the Adult Education Guided Intensive Study (AEGIS) program at Teachers College.

7. Upon completion of the preliminary findings, a focus group of six project managers (non-PMO leaders) working in PMO environments was conducted to triangulate the interview data. Participants in the project manager focus group were identified through the researcher's contacts. Confirmed participants were asked to complete a Project Manager Research Consent Form (see Appendix F) which explained the confidentiality of their responses, the purpose of the study, the data collection methods, and their rights as a research participant.

8. After findings and analysis were completed for the project manager focus group, a summative focus group was conducted with six of the original interviewees. The session was conducted in order to obtain an additional member check and to amplify and extend the findings.

Methods for Data Collection

The following is a discussion of the data collection methods chosen for this study and an explanation of how these methods were developed and implemented to perform the investigation.

Pre-Interview Questionnaire

A pre-interview questionnaire was distributed to confirmed respondents prior to conducting interviews (see Appendix C). 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. The questionnaire was pilot tested with three PMO leaders to ensure it produced the desired results and then submitted for IRB approval.

Interviews

Interviews were a primary means for collecting information about PMO leader perceptions and activities. The interview protocol was refined through pilot testing with three PMO leaders and in consultation with advisors and fellow doctoral candidates.

Interviews lasted approximately 60 minutes and were conducted primarily by phone. Interviewees were briefed on the purpose of the interview and assurances of confidentiality were reinforced to provide a climate of safety. Each interview was taped (with the permission of the interviewee) and transcribed in their entirety by a transcription service. Upon completion of the interview, each respondent was sent a Thank You Letter (see Appendix E).

Over the course of each interview, field notes were entered into the researcher's journal. Upon completion of the interview, field notes were recorded and summarized in a write-up as suggested by Miles and Huberman (1994). After completing the write-up, a Contact Summary Form (Miles & Huberman, 1994) was completed in order to preserve important points, themes or reflections from the interview so they were not lost during the coding and analysis process (see Appendix H).

As Patton (1990) explains, we interview people to "find out from them those things we cannot directly observe" (p. 196). Merriam (1998) explains that interviewing is necessary when we want to find out about "how people interpret the world around them," something that cannot be directly observed (p. 72). Interviews are also necessary when we are interested in past events that cannot be replicated (Fontana & Frey, 1998; Merriam, 1998). It is for these reasons that interviews served as the cornerstone for understanding participant's perceptions and activities.

An important consideration for researchers in using interviews, however, is the need to account for and adjust to the "biases, predispositions, attitudes, and physical characteristics that color the interaction and the data elicited" (Merriam, 1998, p. 87). As Fontana and Frey (1998) suggest, "interviewers are seen as active participants in

interactions with respondents, and interviews are seen as negotiated accomplishments of both interviewers and respondents" (p. 90). It was important, therefore, that the interviewer account for these factors by first recognizing them and "taking a stance that is nonjudgmental, sensitive, and respectful of the respondent" (Merriam, 1998, p. 87).

Interview Schedule. Interview questions (see Appendix G) were developed based on the literature review and the Conceptual Framework covered in Chapter 2. The interview was semi-structured in order to (1) focus the conversation on specific areas related to the research questions and (2) allow for the appropriate probing of responses to open-ended questions. Table 3 which follows on page 72 depicts the flow of logic from research question to literature review areas through to the resulting interview questions. Following Merriam's (1998) suggestion, the interview began with neutral, descriptive information that is intended to lay the foundation for accessing perceptions and opinions later in the conversation.

Table 3: Relationship of Research Questions to Literature Review

Research Question	Literature Review / Conceptual Framework	Interview Questions
1: What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another?	Project Management Offices section of Chapter 1: Introduction (including Table 1: PMO Leader Duties)	1,2,3,4,5
2: How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects?	Literature Review: Situated Learning/ Communities of Practice and Reflective Practice	6,7
3: What do PMO leaders perceive to be the enablers and barriers to sharing lessons learned for the benefit of current and future projects?	Literature Review Section 1: Cross-project Learning	8,9

Focus Groups

After the PMO leader interview data were collected, analyzed and conclusions developed, a focus group consisting of 6 project managers (who had worked for PMO leaders in the past and who were not part of the interview sample) was conducted to review the findings and provide triangulation of the PMO leader interview data.

After compiling and analyzing the project manager focus group data, a summative focus group was conducted with PMO leaders who participated in the study in order to (1) extend and amplify the study's findings and (2) provide an additional member check on the findings.

The focus group discussions were centered on key themes that emerged from the interviews. Participants were asked to elaborate on these themes by providing additional clarity, discussing examples, or adding additional insight. Focus groups were videotaped

or recorded and subsequently transcribed in their entirety. Findings and conclusions were refined and augmented based on the themes that emerged from the focus group discussions.

Fontana and Frey (1998) claim that group interviews facilitate the process of "indefinite triangulation" by putting individual responses into a larger context. The focus groups in this study, conducted after initial analysis was completed and findings compiled, were intended to serve this purpose by allowing participants to comment on the representativeness of the findings vis a vis their own experiences.

As with all methods of data collection, focus groups entail problems of their own because of the group dynamics involved (Fontana & Frey, 1998; Merriam, 1998). The group may interfere with individual expression or be dominated by one person. "Group think" is also a possible outcome, as members may be inclined to agree with one another without questioning the basis of their opinions (Fontana & Frey, 1998; Merriam, 1998).

It is for these reasons that the researcher/facilitator of these groups must have a level of skill capable of dealing with group dynamics factors. The researcher of this study has extensive experience facilitating group discussions through his work in developing teams and conducting workshops and has found ways to work with these challenges as they arise.

As might have been expected, at various times during each of the focus groups, one participant tended to be more vocal than others, often dominating the conversation. The researcher intervened in both sessions at appropriate times to ensure balanced participation. In the project manager focus group, balanced participation was accomplished partly through eye contact and directed questions to those who had not

participated fully. In the summative focus group, which was held via videoconference, the researcher explained at the outset that he would callout names if required in order to balance participation. As a result of one particularly vocal participant, the researcher subsequently began using this technique, enabling other less assertive members to provide their perspectives and opinions.

Methods for Data Analysis and Synthesis

Qualitative analysis involves systematic interpretation of data from a variety of methods to construct meaningful concepts and explanations of the phenomena in question (Denzin & Lincoln, 1998; Merriam, 1998; Miles & Huberman, 1994; Strauss & Corbin, 1998). For this study, pre-interview questionnaires and interview transcripts served as the source materials from which patterns and themes were identified, coded and categorized.

As each interview was conducted, a Contact Summary form (see Appendix H) was generated to capture important points and reflections in order to facilitate recall at a later time. Demographics associated with each participant from the pre-interview questionnaire were stored as attributes using N-Vivo software.

Throughout the process, the researcher maintained a research journal, which recorded interactions and reflections as they emerged so as to identify improvements and/or tentative hypotheses which could be drawn upon for subsequent data collection and analysis.

After all twenty interviews were complete, the researcher selected a sample of six interviews and, upon his advisor's recommendation, tried to understand "the story that was being told" before embarking on the coding process. A tentative coding scheme was developed which was derived from concepts in the conceptual framework (see Appendix

I). This coding scheme appeared to capture the story very well as it viewed PMO leaders as brokers among multiple communities of practice who engage in reflective practices to help their organization learn from past project experiences. Wenger's (1998) boundary practices also provided a very useful container for capturing how participants shared and transferred learning to other projects.

After coding the first six interviews, the researcher developed tentative findings from the coding process and then looked back to the coding scheme to see if it would help "tell that story," assuming the first six interviews were representative. It was at this time that the researcher found that although the coding scheme would capture the story well, the coding tactics needed to be augmented. If the codes were going to provide a representative picture, then critical incidents would need to be tagged in a more structured way, using multiple codes to capture events more holistically. For example, although the researcher had coded for "content reflection" in one sentence, that sentence would also need to be associated with either a boundary encounter, boundary practice, brokering process or other activity. This was also true for boundary objects, which needed to be associated with activities, as the research questions focus on "how" PMO leaders contribute to cross-project learning.

After revising the coding approach, the researcher walked through the coding scheme in more detail with his advisor. Both agreed that given the story emerging from the six interviews, it was time to move forward with an inter-rater reliability exercise.

The researcher then conducted inter-rater reliability exercises with two people: an AEGIS colleague and an industry colleague who was familiar with project management (and would soon be a doctoral student in Organizational Psychology).

The researcher began the inter-rater reliability exercise with the first participant by explaining the coding scheme and providing a dictionary of code descriptions along with examples. The exercise with the first participant provided valuable feedback that led to a number of clarifications of the code descriptions. Inter-rater reliability for the first participant was in the range of 40%-50%. The coding tactics were then clarified and elaborated in preparation for the inter-rater reliability exercise with the second participant.

The researcher then conducted the same exercise with the second participant, yielding approximately 75-80% inter-rater reliability. It was clear that with the clarified codes and associated descriptions, there was significant improvement and a large majority of the coding was in agreement.

After the inter-rater reliability exercises, the first six interviews were re-coded based on the feedback, using a slightly revised coding scheme and enhanced coding procedures. The remaining 14 interviews were then coded, which, along with the first six, produced a number of emergent codes.

Codes generated from the literature and those generated via open coding procedures were distinguished for use in developing findings and conclusions. As the researcher analyzed data and generated codes, the basis upon which these data were coded and reflections thereupon were recorded in the researcher's journal and were associated with each data source.

Appendix J depicts the final coding scheme utilized to present the interview and focus group findings.

Upon compilation of the analysis phase, findings and conclusions were summarized and presented for discussion in the focus groups. The focus group discussions were transcribed and coded. Disconfirming data were scrutinized and emergent themes were identified in order to augment and refine the study's findings and conclusions.

Issues of Trustworthiness

Guba and Lincoln (1998) include credibility, dependability, and transferability as three criteria from which to judge the trustworthiness of constructivist research. Strategies used to address each of these criteria in the research process will now be discussed.

Credibility

The criterion of credibility is closely related to the traditional concept of internal validity (Guba & Lincoln, 1998). Merriam (1998) offers a number of strategies for enhancing internal validity, including triangulation, member checks, peer examination, and clarification of researcher biases. Each of these strategies were incorporated by the researcher and will now be described.

The first strategy to address credibility - triangulation - involved the use of multiple sources or methods to confirm emergent findings (Merriam, 1998). This study drew upon three methods of data collection: (1) pre-interview questionnaires; (2) interviews; and (3) focus groups. The combination of these methods produced a holistic understanding of each participant's perceptions and activities. The mix of these methods was an attempt to overcome the biases inherent in each as discussed previously.

The second strategy used to address credibility was member checks. Member checks entail "taking data and tentative interpretations back to the people from who they were derived and asking them if the results are plausible" (Merriam, 1998, p. 204). When findings were developed based on PMO leader interviews and the project manager focus group, a member check was included through the use of a summative focus group. The summative focus group included members already interviewed in the study to obtain feedback on whether or not the results were representative of their experience.

The third strategy to address credibility was peer examination. This study involved peers by asking fellow colleagues to comment on the findings as they emerged and to provide insight and feedback.

The fourth strategy to address credibility involved clarifying researcher biases. An initial description of researcher assumptions is included in Chapter 1 for this purpose. Along the way, the researcher sought to avoid "leading" participants in the direction of these initial assumptions, allowing room for fresh data and themes to emerge from their perspective.

Dependability

The criterion of dependability is closely related to the traditional concept of reliability (Guba & Lincoln, 1998). Merriam (1998) offers three strategies for enhancing reliability: describing the investigator's position in relation to the research process and participants, triangulation, and establishing an audit trail.

The researcher attempted to make his position clear in relation to the research process and participants by describing his background and the purpose of the study.

Interviews took place in person at company locations where possible and by phone for those outside of the New York area.

As with the criterion of credibility, triangulation was also utilized to enhance the dependability of the study through the use of multiple methods of data collection.

An audit trail was created through the ongoing use of a research journal and associated research memos. These recordings allow external parties to understand in detail how data were collected, categories derived, and decisions made during each step of the research process.

It should also be noted that the researcher invited peers to assist in establishing inter-rater reliability during the analysis phase (Merriam, 1998; Miles & Huberman, 1994). After a tentative coding scheme was developed, two other colleagues were asked to perform "check-coding" (Miles & Huberman, 1994) in order to establish a sufficient level of inter-rater reliability.

Transferability

The criterion of transferability is closely related to the traditional concept of external validity (Guba & Lincoln, 1998). Merriam (1998) includes rich, thick descriptions and multi-site designs as two strategies researchers can deploy to increase the transferability of the findings to other settings and contexts.

Incorporating multiple sites in the participant sample as Merriam suggests was a cornerstone of the research design. In addition, participants were drawn from a variety of industries in order to increase transferability. However, as much as the researcher attempted to represent a variety of functional areas, the sample that resulted comprised a

majority (65%) of participants in the information technology domain. The transferability to other domains outside of IT may therefore be limited.

Limitations

The limitations of this research relate to three key areas: 1) the researcher as instrument; 2) the "partiality" of PMO leaders as representatives of their organizations; 3) the generalizability of the findings to broader populations; 4) volunteer bias 5) retrospective recall; and 6) the challenge of making interviewee's tacit knowledge explicit. Each of these will be discussed in turn.

First, as with qualitative research in general, the researcher and participants co-construct meaning from their interactions and, because of the inevitable biases and dispositions present in each individual, will make choices, conscious or unconscious, about what will be discussed and explored. The researcher, having been involved with implementing PMOs, necessarily had assumptions, interests, and perceptions that relate to his individual experiences. As a result, he attempted to reflect on these biases and assumptions as the research proceeded, both in a research journal and in conversations with colleagues and advisors. Participants were also expected to have biases about what the researcher was looking for and it was expected that they might try to provide the "right" answers, even though these may not have reflected their past behaviors and activities related to cross-project learning. The researcher attempted to focus questions about past activities on what the participant has actually done rather than what they had aspired to do.

The second limitation relates to Wenger's (1998) concept of the "partiality" of a given member of a community of practice. As he suggests, our knowledge of the

practices within a given community of practice are dependent on those who give us peripheral access to them, in the case of this research, the interviewee. He claims that "1) no single member is fully representative of the practice as a whole; 2) what people remember depends on their experience of the moment; 3) in the absence of practice and the rest of the community, isolated representatives cannot fully act and function as they do when engaged in actual practice" (Wenger, 1998, p. 111). In this respect, the research was necessarily limited by each interviewee's partiality as representatives of the communities of practice with which they were associated.

To address the limitation of interviewee partiality, a focus group of project managers who had worked for PMO leaders was conducted to provide additional, different perspectives. The additional data obtained from the project manager focus group was used to provide validation and triangulation of the PMO leader findings.

The third limitation of the research relates to the transferability of the findings to other PMO leaders' contexts. Therefore, the population included cannot be understood as a representative sample, nor can it be understood to be representative of PMO leaders in general. Given this limitation, however, the study was designed to represent a heterogeneous population of participants in order to increase the likelihood of transferability (rather than generalizability). Consumers of the research may find themes that are relevant to their individual situations; themes which cut across the experiences of a handful of their peers having participated in the research. The researcher attempted to provide adequate descriptions of participant responses so future readers can determine whether or not their situations apply.

The fourth limitation of the study relates to volunteer bias. Participants were solicited, in part, through emails sent to various PMO leaders found through snowball sampling. This recruitment method may have resulted in volunteers who were eager to discuss specific accomplishments and perspectives in ways that were not representative of PMO leaders in general.

The fifth limitation of this research relates to retrospective recall. Respondents were required to search their memory for examples of previous situations in which they participated. The quality of the data was necessarily limited by the interviewee's ability to recall and explain these past events from memory. To mitigate this limitation, respondents were notified in advance that they will be asked to discuss past examples of situations with which they were a part. This may have assisted them in recalling specific events prior to the interview, enabling the discussion to reflect their past experiences more comprehensively.

The sixth and final limitation relates to the ability to assist respondents in making their tacit knowledge explicit via the interview process. Respondents may have negotiated and shared project lessons learned in ways that were unconscious and not easily translated into words during the interview; their knowledge may therefore have gone unrecognized. The researcher made adjustments to the interview protocol that were intended to account for the need to make tacit knowledge explicit. Specifically, critical incidents were used that were selected by respondents themselves. The researcher was then able to probe these stories and "dive deeper" based on the information required. However, the research is necessarily limited by the ability of respondents to describe their

knowledge and experiences in words so that the researcher could document and analyze the knowledge upon completion of the interview.

Chapter 4
Findings

Introduction

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. This chapter presents the key findings that have emerged from in-depth interviews with 20 PMO leaders and two focus groups, each consisting of 6 participants. Charts depicting the categories, sub-categories and their frequency of occurrence across participants for all findings are included in Appendices K-S. Pseudonyms are used to ensure participant confidentiality. Table 4 on the next page presents an overview of this study's research questions and the associated findings.

Table 4: Research Questions and Associated Findings

Research Question 1: What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to the next? **Finding 1:** Most of the PMO leaders perceive their primary responsibility as ensuring successful project delivery, while slightly more than half perceive that it is their responsibility to have project teams identify lessons learned at project closure in order to foster continuous improvement. Other responsibilities include consistency in project management practices and providing a learning and growth environment for project managers.
Research Question 2: How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects? **Finding 2:** All the PMO leaders facilitated learning from past project experiences for the benefit of current and future projects by brokering practice connections between management, project teams and other communities of practice. Brokering activities include establishing project management processes common to multiple projects and coordinating sessions in which reflective practices are utilized to facilitate learning from past project experiences. Other ways PMO leaders facilitate cross-project learning include formal training, drawing on personal experiences, and personnel selection.
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? **Finding 3:** The majority of the PMO leaders identified strong working relationships and support from senior management as enablers of learning, while insufficient authority over projects was the most commonly identified barrier. Other enablers include a learning oriented culture, a neutral facilitator for lessons learned, and professional development. Other barriers include staff rotation, fear of airing mistakes, deferring reflection and difficulty accessing prior lessons learned.

Finding 1: Most of the PMO leaders perceive their primary responsibility as ensuring successful project delivery, while slightly more than half perceive that it is their responsibility to have project teams identify lessons learned at project closure in order to foster continuous improvement.

Overview

This finding is based on responses to interview questions which focused on the stated mission of each participant and their perceptions regarding upper management's

expectations with respect to lessons learned and continuous improvement. Three points can be made that may help the reader understand the researcher's approach to this research question. First, by asking about their group's mission, the researcher aimed to get an understanding of participants' responsibilities from the perspective of what they communicate to others in their organization. This helped to obtain a more "objective" view of their primary responsibilities. Second, the researcher first asked participants to describe the mission of their group in the pre-interview questionnaire. Then, at the beginning of the interview, the researcher asked if there was anything else they'd like to say about the stated mission. Third, the researcher asked about upper management's expectations with respect to continuous improvement and transferring lessons learned in order to understand the pressures (or lack thereof) participants may face in those areas from above. Table 5 provides an overview of the framework for reporting Finding 2. Appendix K provides an overview of the data that contributed to Finding 1.

Table 5: Overview of Finding 1

Finding 1

Most of the PMO leaders perceive their primary responsibility as ensuring successful project delivery, while slightly more than half perceive that it is their responsibility to have project teams identify lessons learned at project closure in order to foster continuous improvement.

- Three quarters (75%) of participants perceived their primary responsibility as ensuring projects are delivered on time, within budget and aligned with stakeholder expectations.
- Many (60%) participants expressed that they require project teams to identify lessons learned upon completion of their work.
- Just under half (45%) of participants expressed that continuous improvement in project performance is an important aspect of their responsibilities.
- Just under half (45%) of participants perceived they are responsible for ensuring that project management practices are implemented consistently across their organization.
- A few (20%) participants reported that their responsibilities also include establishing a learning and growth environment for project managers.

Three quarters (75%) of the PMO leaders expressed that their primary mission is to ensure that projects are delivered on time, within budget and aligned with stakeholder expectations. Patty described her mission in this regard as follows:

> We've actually evolved our mission statement recently. What I mean by that is, in the past, we have always focused it in a very narrow way, which is about supporting project success from a project delivery perspective. And we've really evolved that to say, "We are supporting tactical execution of a strategic plan," which doesn't suggest that we are taking a backseat in insuring that the project is delivered well, and we make sure that that continues. But it was to heighten the recognition that everything that we do around proper and good execution of our corporate or our priority initiatives directly aligns with global organizational success.

Similarly, Harold described his group's mission as ensuring "effective management of the resources needed to deliver quality solutions on time and on budget." In response to a question about upper management's expectations regarding continuous

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

Many (60%) of the participants reported that they require project teams to identify lessons learned upon completion of their work. They did so primarily by incorporating this requirement into their standard approach for project teams. Sarah described her organization's approach as follows:

> In many stages in our 7-stage methodology, well every stage, there's an interface review and one of our key deliverables at the end of the project is a lessons learned document. The learning process is already tactically there within the methodology.

Mitch reported that "we do post-mortems and things, 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." Similarly, Robert mentioned that "as a PMO, we insist upon a lessons learned or a post-mortem after every project."

Just under half of the PMO leaders (45%) also expressed that they were responsible for continuous improvement in project delivery. As Debra explained, "I mean, 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." Wendy reported that her mission was to, in part, "Provide a mechanism for identifying opportunities for improvement."

Of those whose mission did not explicitly focus on successful project delivery, all expressed that ensuring consistency in project management practices was their top priority. Overall, just under half (45%) of the PMO leaders expressed that their primary mission related to consistency in project management practice. This responsibility was

illustrated by a comment from Mack, who described his highest priority for the upcoming year:

> 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.

Ensuring consistency was also reflected in Rachel's mission, which she described as follows:

> To institutionalize repeatable project management discipline, enabling a consistent, transparent, connected approach to project management across teams.

A fifth of the participants expressed that establishing an environment conducive to learning and growth, particularly for project managers, was also an essential part of their mission. However, no participants reported that this was their sole responsibility. That is, all who expressed this as a primary responsibility expressed it alongside successful project delivery, continuous improvement and/or consistent project management practices. Melissa described her focus on learning and growth as follows:

> And then in order to accomplish the goals of the PMO and the business, the PMO must be supported by skilled and experienced Project Managers. They need the appropriate training, tools and supportive environment to do their best, providing quality and value to the business, which will increase their job satisfaction, morale and credibility.

Similarly, Seth's mission included creating a "world-class learning and growth environment" for project managers.

In the summative focus group, Rachel described the importance of successful project delivery as a primary responsibility and confirmed that the other responsibilities noted by others in the study – continuous improvement, consistent project management

practices, and a learning and growth environment for project managers – all "work together" and "resonate with her."

> I would never say I wouldn't want all four of these things to be front and center in my PMO and that's what would be expected. But in the end, it certainly boils down to effective project delivery. Because if that's absent, the others are going to be hard to prove their worth. If you're not delivering effectively, nobody really would want to know your Project Management practices. So you know, in general, those four things work together. When I see continuous improvement, that's about continuously improving the project delivery as well as the PMO experience. So all four of those resonate with me.

Finding 2: All the PMO leaders facilitated learning from past project experiences for the benefit of current and future projects by brokering practice connections between management, project teams and other communities of practice.

Overview

The findings in this section are based on interview conversations with participants related to critical incidents - high points or low points in their experience. Two different types of critical incidents were sought. The first critical incidents in the interviews focused on experiences where participants attempted to derive learning from past project experiences within their organization. The second set of critical incidents focused on experiences where participants attempted to share or transfer learning to current or future projects.

The categories of this study's conceptual framework, as discussed in detail in Chapter 2, are drawn primarily from the work of Wenger (1998) and Mezirow (1991). In presenting the findings, therefore, this section describes various ways in which these theorists' concepts manifest themselves in the PMO leader practice setting. To provide a bridge for the reader, Table 6 lists each theory-based category of the conceptual

framework along with examples that provide translation from the conceptual to the practical. That is, how the behaviors are manifested in the practice setting. Appendix L provides an overview of the data that contributed to Finding 2.

Table 6: Theoretical Categories and their Practice Setting Manifestations

Theoretical Category	Practice Setting Manifestation
Brokering	PMO leader coordinates and aligns groups, departments, and teams, translating their community-specific languages and ideas in order to facilitate project-related communication.
Boundary Encounter	Ad hoc or non-routine meeting with members of two or more groups, teams or departments.
Boundary Practice	An ongoing process established by the PMO to facilitate alignment between management, project teams and the PMO. Examples include status reporting, lessons learned sessions, and face-to-face knowledge sharing.
Boundary Objects	Tools, templates, intranet portals, and databases, that facilitate knowledge capture and exchange.
Reflective Practices	Often manifested as organizational members discussing "what worked and what didn't" with respect to past project experiences or PMO processes.

The following discussion mirrors the above categories which were drawn from the conceptual framework and which provided a container for capturing interview responses. Charts depicting the categories, sub-categories and their frequency of occurrence across participants are included in Appendices L-S. Table 7 on the next page provides an overview of the framework for reporting Finding 2.

Table 7: Overview of Finding 2

Finding 2

All the PMO leaders facilitated learning from past project experiences for the benefit of current and future projects by brokering practice connections between management, project teams and other communities of practice.

Brokering:

- All participants indicated that they create practice connections between project teams and management, providing coordination, alignment or translation between and among these communities.

Boundary Practices:

- All participants expressed that they had established processes that are common to multiple projects - including lessons learned practices, project methodologies, and status reporting and governance processes - that surface opportunities for learning and provide a vehicle for transferring lessons learned to current and future projects.

Boundary Objects:

- All participants expressed using tools & templates, systems, or documents that provide a means to incorporate learning from past project experiences into future projects.

Boundary Encounters:

- 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, 2) transfer project management standards to new teams, or 3) continuously improve project management processes.

Reflective Practices:

- Three quarters of the participants described how they engage in content and/or process reflection to diagnose project-related problems and to help stakeholders learn from past project experiences.

Formal Training:

- Just under half (45%) of the participants report that they provide formal training in project management to transfer lessons learned, including project methodologies and "soft skills" deemed important to the organization.

Personal Experience as Project Manager:

- Under 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.

Personnel Selection:

- A few (15%) participants reported that they transfer lessons learned from past project experiences by selecting future project managers with the requisite competencies.

Brokering

All twenty participants indicated that they create 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. Appendix M provides an overview of the data that contribute to this sub-category of finding 2.

Coordination. The vast majority (90%) of the PMO leaders indicated that they helped their organizations learn from past project experiences by coordinating practice connections. Patty talked about how she and her team coordinated one such learning process that involved multiple project managers using previously documented lessons learned:

> Again, we scour and go through the project closing documents for each project that closed for that year, and we identify on our own within the PMO what we believe to be the nuggets. Then what we will do is we will outreach to a select number of Project Managers, who were responsible for those projects, work with them to develop presentations for their peers and then we will hold a formal lessons learned workshop with this audience.

June described how she and her team coordinated a project kickoff where they transferred lessons learned from previous failures by providing clear roles and responsibilities up-front, so all participants would know what to expect from one another:

> So when you invite eight people to be a part of a particular work stream, what role is each one of them playing? So that when we kick off the project (and we actually just did this with a project that's kicking off next week), every single person walks in saying, "I'm here to listen and provide input, but I've got no decision rights here." Or, "I'm being asked to build this and these are the people to whom I need to listen." You know, it's sort of an obvious thing, but we're making it incredibly explicit.

Alignment. The vast majority of participants (85%) also reported brokering activities related to aligning the perspectives of two ore more communities by addressing conflicts, particularly when problems arose at the project level. Through these interventions, PMO leaders were able to surface issues from past project experiences that needed to be addressed, often in order to maintain alignment between project teams and senior management. June talked about her experience working with a project team that management felt was running off course:

> So what we did was we pulled the Operating Committee, in fact, we pulled three Operating Committee Members together with their direct reports that were involved in this, and sort of went back a couple steps and then went through the assumption process; identified why this disconnect seemed to be happening, in terms of what they thought we were asking them to do versus what we were actually asking them to do. We reconfirmed that it was okay to go forward, documented it and then moved from there.

Victor described how he facilitated alignment by working with senior management to implement new project methodologies that were based on his previous experience as a project manager:

> What I did was I got buy-in from the management level on both the Business and IT side with my boss and my peers, in terms of some of the things I was recommending, and also I would take any feedback that they provided me and obviously try to apply it in some way, shape or form, if I thought it was justified. So I basically, in this case, kind of did a top-down approach, in terms of getting the buy-in from the management staff before rolling it out to kind of the team lead level staff.

In the summative focus group, Suzie confirmed the importance of coordination and alignment within her context:

> So in our case, I would say the majority of our activities are around coordination and kind of connecting the dots. Most of the activity we've done so far is more around program management, where we're trying to help align a larger program and multiple Project Managers within that

> program. So definitely alignment and coordination have been our top activities so far.

Translation. Most of the participants (70%) also report engaging in activities related to translating one community's meanings into that of another in order to facilitate the learning process between them. Patty's quote above demonstrates how her team "scours" the database to uncover "nuggets" that should be shared with other project managers. Antonio described another such translation activity in which he facilitates engagement between a project team and senior management:

> Now I should say that prior to these PMO meetings, I obtained the business case summary, the financial model that they're put together for these projects. And I provide a very high level pre-read copy for the PMO Committee at least a week in advance of the meeting. So that they're not going in cold to those meetings.

In the summative focus group, Robert talked about a $50,000 project he launched specifically to help one community - the Information Technology department - understand the language and practices of "the business" community by publishing a "black book":

> We have the IT Department of like, at the time, 300 people. And we had a Business community that was suspicious of the IT Department's understanding of the business and how it actually functions and how it actually makes money. That suspicion led to a credibility issue. So there was a chasm between what technology could enable for the business and what the Business thought the Technology could enable for them. So to address that chasm, we said, "You know what? Maybe IT doesn't understand the business. Let's write a book about the business and give it out to everybody in IT." And the code name for the book was called the Black Book. And it was the who, what, where, when of how we make money.

Boundary Practices

All participants expressed that they had established processes that are common to multiple projects - including lessons learned practices, project methodologies, and status reporting and governance processes - that surface opportunities for learning and provide a vehicle for transferring lessons learned to current and future projects. The data contributing to this sub-category of Finding 2 is included in Appendix N.

Lessons Learned Practices. Lessons learned practices were the most common boundary practice that surfaced opportunities for learning. The great majority of participants (85%) reported that they or their company require that project teams conduct lessons learned sessions upon project closure, resulting in a "lessons learned document." The purpose of the lessons learned sessions was to encourage team members to reflect on their past project experiences in order to identify opportunities for improvement on future projects. Robert described how lessons learned were required by his PMO after projects were completed:

> And as a PMO, we insist upon a lessons learned or a post-mortem after every project. About two weeks after every project, there has to be a lessons learned, a post-mortem. 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?"

Robert also described how he required project managers participating in lessons learned sessions to seek out others who might benefit from the resulting knowledge:

> Anything that we can take from that and immediately apply to other projects, one or more other projects, the Project Manager usually contacts the other gaining Project Manager, if you will. The one that's gaining the knowledge from this lessons learned and says, "Hey, be on the lookout for something like this. It hasn't happened in a while but it just happened on my project.

In answering a question in the project manager focus group about how PMOs help project teams learn from past project experiences, one project manager confirmed the existence of lessons learned practices in her environment, saying "One of the processes that we put in place at my last company was that [a lessons learned document] was a required deliverable before you could exit a project."

Status Reporting & Governance. The great majority of the PMO leaders (85%) have established status reporting and project governance practices that surface opportunities for learning from past project experiences. Rachel explained her PMO's approach to status reporting and its focus on uncovering problem areas that might have emerged over the course of a project's lifecycle:

> That takes us right back to those project updates. In terms of, once a month, formally the Project Managers are reporting out along a lot of different areas. Actually one point I want to make is over the year, we've also refined what they're reporting out on so that it's not just a red-amber-green rating on the overall project. But we've asked for more granularity. Maybe the overall project is amber, but where are you green? Where are you red? Where are you yellow? Is it around financials? Controls? Project planning? Resource management? You know, so forth, and so on. So that's another lessons learned, not just to broad sweep a project red, yellow or green, but in fact try to focus in on the root cause.

Sarah described a jolting experience resulting from a senior executive's "no-go" decision resulting from a project governance checkpoint; an event that spurred efforts to reflect on the reasons why the mission-critical project had faltered:

> I found out through a report from the Project Manager and the head of the London Office, to say that the key deliverable for that phase with a "go/no-go" had been called a "no-go." Then there was a plea for help, which is, "What do we do?"-- You know, "This calls into question everything now. Our plans, our resources. What are we going to do?" So that's how I found out.

Cathy described how she is moving towards establishing a more formal governance process that involves senior decision-makers, ensuring alignment between business priorities and project management:

> What we're trying to do right now is we're putting in a set of gates. So that you have to pass through certain gates, which will be certain evaluations. We do this now informally and a lot of the projects go through this, but we're trying to make it so that they all go through this and no one bypasses it because we really want to have everything aligned with the business objectives and we want to make sure that there are other VPs, especially on the Business side, are aware of what's being requested and are aware of what's going on.

In response to the finding that PMO project governance triggers learning opportunities as in Sarah and Cathy's situations above, one of the project managers said the following in the project manager focus group:

> "Well, I think who you're presenting to...the members of the Steering Committee often have good questions or key points that help to reflect a little bit more on how the project is being conducted. I mean, it's not the best place to learn but...it happens." (Project Manager 3)

In a discussion of the ways in which PMO leaders transfer learning in the summative focus group, Rachel confirmed the role that status reporting and governance can play:

> You know, we use the toll gate concept, where basically you have to present certain documents, so you can get through the toll gate and that helps [to ensure learning is transferred to future projects].

Project Methodologies. Project methodologies were clearly the most common boundary practice that made past learning available to future projects. Most participants (80%) had established guidelines for project managers that outline requirements, standards or guidelines for managing project work that were intended to incorporate

lessons from past project experiences. Mitch described how they have incorporated improvements in their project methodology based on past project experiences:

> The other piece is that, you know, where we have learned clearly from the past, and brought forward into future projects are things like a-- More of the acceptance criteria for our vendors. In other words, there is some acceptance criteria that we have written from our vendors when they hand us something. "Okay, we're not going to take it unless you have this, this and this done." So those are things that we have learned, as we've moved forward and brought into future projects what we've done.

Rachel talked about another example of incorporating previous learning into a project methodology:

> Another area of lessons learned is having a documented communications plan; change management plans. So you know, all the good practices, but just making them more and more-- I don't like using the word "formal"-- but more and more expected. As part of your role as a PM, you have to have these things in place.

Knowledge Sharing Forums. Half the PMO leaders (50%) report that they had established knowledge sharing sessions where project managers or PMO staff share lessons learned, providing others with an opportunity to learn from their experiences. Wendy described one such example of an informal face-to-face knowledge sharing session where project managers got together for lunch:

> Every month, I sponsor the "Lunch and Learn" where I have like all 30 employees and consultants in the tank, and that's where I'd get an hour and a half with them. And in there, we would talk about lessons learned as well. We have a chance for the PM to say what's working well and what is not working well.

Patty discussed another example of face-to-face knowledge sharing where her staff members, consisting of project "liaisons" that maintain connections with project

managers and project teams, meet to discuss current issues and identify learning opportunities:

> The members of the PMO have weekly team meetings. Through those weekly team meetings we will do liaison updates that help to promote and identify things that are happening out there, as real time as possible, that will be headline-worthy, newsworthy, action-oriented for the PMO, as a whole, or to further equip or better equip our PMO liaisons in the liaison role. So we really kind of do this on an iterative process all the time, depending on what the real life issues or things are. So the PMO, in a way, doesn't wait every year for the lessons learned activity in a formal level to occur before we identify opportunities to address things as we see them.

One of the project managers in the project manager focus group talked about his experience with knowledge sharing forums in which very specific lessons learned were selected and discussed among project managers:

> Another thing is, like we have, what do you call it? A monthly meeting, all heads meet to do the Project of the Month... So basically what we do is we pick up something special about a project...We pick up a very specific situation. Okay, we reached a problem, a typical problem situation within the scope of the program...We concentrate on that pertinent piece [versus] the whole project because we have realized that we do not get that kind of attention when you're talking about the whole project. (Project Manager 1)

Boundary Objects

All participants expressed using tools & templates, systems or documents that provide a means to incorporate learning from past project experiences into future projects. The data contributing to this sub-category of Finding 2 is included in Appendix O.

Tools & templates were utilized by 85% of participants to share and transfer learning from past project experiences. Wendy described how she and her team

developed a standard template and refined it as they learned more over the course of their project experiences:

> So we have a document that outlines all of the product information needed to actually build a product. Then it becomes the product record, so to speak. So that the next time the product needs to be upgraded or modified, you can go back to that sort of source document and then work from there to do your change estimates and figure out what needs to be done. We've been fine-tuning that document. I mean we were fine-tuning it basically weekly for the first couple of months we used it.

In response to the question, "What are some other ways in which PMOs transfer learning?" a project manager Similarly talked about the role of tools in his PMO experience:

> They can share tools that worked on one project for another project. And also the ability to use Microsoft Project. Because Microsoft Project has many, many different ways of using it, with tools and views and whatever. It's not really standardizing it but by using it the same way, you can give some knowledge from previous projects of things that work and things that didn't work, moving on to the next project.

Systems such as intranet portals, databases, and project tracking tools were also utilized by 65% of the PMO leaders to share or transfer learning from past project experiences. Rachel described how her team established an intranet site to share tools and templates:

> We put up a site to house the various templates and examples of-- You know, not magic, but actually put up a project management site so people could find these templates, and find the charter document, and find an example, and find a communication plan. Because there was this endless, like, "Oh, can you send me-- Can you send me?" And then you're searching through emails. So just that, is a simple way of helping people with the tools.

Similarly, Cathy described how her team posts status reports to the intranet so that others in the organization can see what projects are currently in progress as well as their current status:

> But the status reports are out there on the web intranet website, that anyone can reference any time. So we're trying to keep them current. I do take snapshots (like I freeze the dashboard) and I have historical information. But what's out there, like if you were to go on our website and click on a particular project, you would be able to see the current status of that project.

The use of documents to facilitate learning from past project experiences was expressed by 40% of the PMO leaders. Documents were used when tools or templates were not available for the particular purpose at hand. Mitch, for example, documented a lesson learned in order to ensure that their vendor, an outside company, was provided with formal written notice regarding his company's expectations for the future when and if a similar problem occurred: "What we did was we documented [the lesson learned] and are now working with our vendor to make sure that when we are working with something that involves both parts of their company, that those parts are communicating adequately." Similarly, Victor described how he used a slide deck to capture the collective learning of a project team after a lessons learned session so that it could be forwarded on to others.

> It does get documented. We prepare a slide deck, usually about 10 slides, that includes kind of everything that happened on the [most recent phase of the project], including what scope was delivered; what scope might we have deferred, that we're planning to deliver; how many hours of work were completed, etc., etc.; and then we kind of say-- There's a slide for what worked well; what did not work well. We review that as a management team, make any adjustments we feel are necessary, not just to the team that produced the feedback but making sure that other teams taking a similar approach also get that same feedback.

Boundary Encounters

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, 2) transfer project management standards to new teams, or 3) continuously improve project management processes. Appendix P provides an overview of the data contributing to this sub-category of Finding 2.

Project Intervention. Just over half (55%) of the PMO leaders held discussions with key project or management personnel in order to diagnose and remediate problems occurring at the project level. June described how she worked with one of her project managers to better understand what was happening with a project team that began to falter:

> I think, the project manager that kicked off the project and I sat down and went through, "Okay, this is what we're hearing. This is what it looks like. What is causing this?" We did a little bit of sort of informal cause analysis and came to the conclusion that where people thought that others had agreed to move forward, they actually hadn't yet. Then we went back and sort of researched it to see if that was true, and it seemed to be true.

Similarly, Melissa described how she engaged a project team to help improve their project delivery practices:

> So I attended their meetings. In fact, [my boss] had me start running their team meetings, to figure out what they were doing...So I was meeting with them combined as well, putting stuff in place for them, standards and things. So that's how I got into that one.

Transfer of Standards. Some of the PMO leaders (35%) expressed that they or their staff met with others in the project environment, including project managers, project

teams or senior management, in order to transfer previously established lessons and standards to future project efforts. Patty described how she engaged the executive team in spreading the word about lessons learned from the previous year's project work:

> So much of what happens gets derived out of the lessons learned at the project team level. It gets bundled up and it gets incorporated into-- It's an annual executive training, where we get airtime every year in front of all of our executives. It's typically our Directors and above, and the Project Management Office has carte blanche to identify and decide, "What is the most pertinent Project Management topic, or lesson, to be given to executives?"

Similarly, Seth talked about how he transferred improved practices to an existing project that looked very similar to two massive failures for which he had previously developed two cases studies:

> ...and this was during the time that we were evaluating what'd taken place on these first two deals that I had mentioned to you. And she said, you know, she threw up a flag, to her credit, and said, "Help Somebody's got to come look at this because this could unravel." And we did and said, "You're right, and this has all the earmarks of what we just looked at." Even though the Director position was not funded in anybody's budget, we said, "The right thing to do is to put the fix in before we encounter the problem." So we put the person in there.

The development and dissemination of the two case studies that Seth had coordinated enabled others in the organization to understand some of the pitfalls that large, multi-business unit projects entailed. He was subsequently able to leverage the learning from these two prior failures by aligning the troubled project with new practices aimed at preventing the past failures from recurring.

Process Improvement. Some of the PMO leaders (30%) coordinated delegations from various groups in attempts to implement improvements to the organization's project

management processes. June described the quarterly meetings she hosts to improve the organization's project management methodology:

> It starts with, you know, compared to last quarter-- "What did you think went easier this time than it did last time? What are the things that seem to be recurring? Here's the list of issues we identified last quarter, have any of them actually gone away? And/or do you see any of these still here and/or getting worse?" And then we'll delve into the things that seem-- And the things that got better, we also talk about why we think they got better.

Similarly, Greg discussed how he coordinated an encounter with a key department where they reflected on their partnership in order to improve their collaborative process:

> I proposed, and it was very well received, that we have a workshop, where we bring ourselves together and we talk about, "How can we leverage ourselves to be more successful? How can we maximize the effectiveness of the partnership?" And that was all about looking at where the partnerships are working really well, what can we learn from that and transmit it to the rest of the organization.

Reflective Practices

Three quarters of the PMO leaders described how they engage in content and/or process reflection to diagnose project-related problems or improve processes common to multiple projects. The data contributing to this sub-category of Finding 2 is included in Appendix Q.

Content Reflection. Almost half of the PMO leaders (50%) expressed that they engaged in content reflection. Mack described how he engaged project members in content reflection by polling project members individually prior to a lessons learned session with a project team:

> One way, which I like the most is to ask everybody to, which I've been recommending to project managers, you know, to send an email to everybody on the team, asking them to write a couple of things. What went well and what went wrong? What could have we improved? And

> send it back to me or whoever is the PM. In that case, what happens is one person cannot influence the other. So we just get all the feedback and somebody synthesizes that data and then presents it in front of the team together.

Similarly, Suzie described how she polled project members before a meeting she called to get a troubled project team back on track:

> What I did before the meeting, just to make sure I really understood everything, is I went around to each person that had been involved and I asked them about the project; where it was; what were the challenges; what might be the hurdles to success; what difficulties they were having.

Process Reflection. Process reflection was expressed by just under half (45%) of the PMO leaders. June described how her team engaged in process reflection to improve her product development approach after completing a series of recent product development projects:

> We had done our fourth set of post-mortems on releases. Right? 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., etc.?" And what we realized was three quarters in a row, we were having role and responsibility issues and decision right issues, and one of the root causes was organizational change. So what we realized was, "Is there a way to sort of codify at a point in time what we're asking someone to do?"

Similarly, Patty described how her team reflected on their processes in order to continuously improve:

> And we did an actual lessons learned, if you will, of the process that we had initially had designed and developed, which includes a three-phase process on how we nominate, prioritize and select portfolio items. And then we'll go through an end-to-end evaluation to identify opportunities, to streamline, be more efficient and articulate better results.

Formal Training

Of the PMO leaders in this study, 45% expressed that they provide formal training in project management that enabled lessons learned or "best practices" to be shared or transferred, including project methodologies and "soft skills" deemed to be important within the organization. Classroom training of this sort is made available to project managers, team members and in some cases senior executives. Debra described how her organization, in conjunction with the training group, rolled out a new project management training program for executives:

> Actually, we also offer, I'm going to call it like a-- The Fire Hose Project Management Class for Executives. We call it "Just Enough Project Management" so we offer that, so that we're hitting all the levels. From an executive's perspective, "What are some of the things I need to be looking for in order to help Project Managers run projects for my organizations? What are some of the areas I can assist?" We actually give them a laminated card with the phases of a project and it's all PMI-compliant. What are the phases? And then what are the questions they should be asking when they're in a specific phase?

Similarly, Cathy described how her organization rolled out training for project members:

> We have a certain group that provides training, that we've contracted, that has actually-- You can take how to run projects from a pure state, and then you can also put the Consumerco pieces into that training. And that's what this particular organization was able to do. The head of the training was able to make that connection with them and to have it customized so that, not only did you get the theory, but you actually got a lot of the practical sides of the pieces that we require here at Consumerco.

Personal Experience as Project Manager

Almost half the PMO leaders (40%) reported they had either learned from past project experiences themselves or had staff members who drew on their own experiences as former project managers within the same organization. These personal experiences as

project managers within the organization were perceived to have shaped their thinking about areas that needed improvement. Harold talked about how he drew on his previous experience as a project manager within his organization to develop ideas for improvement, saying "part of getting this job was I took a lot of my experiences as a PM and said, here's the things we need to work at from a PM's perspective." Debra explained how one of her staff had similarly drawn on his experience as a project manager to document lessons learned in order to improve future projects:

> 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. So there, the lessons learned were basically documented and put into a process.

Personnel Selection

A few (15%) of the PMO leaders transferred lessons from past project experiences by selecting future project managers with the requisite competencies. Sarah's team, for example, after having the "plug pulled" from a project before it went live, held a lessons learned session after the project was finally over. As a result of that meeting, she and her peer, who manages the "technical managers," decided not to place people in that role as project managers in the future. She explained this scenario as follows:

> So he and I decided that, as a direct lesson from Australia, remembering that very, very, very well, and others, that we would make it immediate policy that no Technical Manager was allowed to be a Project Manager anymore.

June, after "rescuing" a faltering project, determined that project managers in the future would have to have a certain mindset, one which the previous project manager had not had:

> And what's happened is that person is not engaged any longer in those sorts of projects because this is not a person who is good at anticipating obstacles and planning for them. What's required in that role is what I call "optimistic half-empty thinking."

Finding 3: The majority of the PMO leaders identified strong working relationships and support from senior management as enablers of learning, while insufficient authority over projects was the most commonly identified barrier.

Overview

Finding 3 is based on interview conversations with participants related to critical incidents – high points of low points - where they either attempted to help their organization learn from a past project experience or where they attempted to share or transfer that learning to other projects within their organization. Two additional interview questions also contributed to this finding. First, participants were asked "In what ways does the organization support your efforts to learn from project work and/or share lessons learned with your team and others?" Second, participants were asked, "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?" Both of these questions in combination with the critical incident discussions generated a multiplicity of barriers and enablers of cross-project learning.

The discussion that follows is divided into two parts. The first part describes the enablers of learning from past project experiences as reported by the PMO leaders. The second part describes the reported barriers. Appendices R and S provide an overview of the data that contributed to Finding 3. Table 8 on the next page provides an overview of the framework for reporting Finding 3.

Table 8: Overview of Finding 3

Enablers

The majority of PMO leaders identified a network of strong relationships and support from senior management as enablers of learning from past project experiences. Other enablers include a learning oriented culture, a neutral facilitator for lessons learned, and professional development.

- Over half (60%) of the participants expressed a network of strong relationships as an enabler of cross-project learning.
- Over half (60%) of the participants also reported support from senior management as a key enabler.
- A third (30%) of the participants expressed that their organization's culture also plays a positive role in facilitating cross-project learning.
- A quarter (25%) of the participants also noted the following enablers:
  - Utilizing a "neutral" facilitator for lessons learned sessions
  - Developing the professional capabilities of project managers through training, apprenticeship or knowledge-sharing.
- One tenth (10%) of the participants expressed reflection throughout the project as an enabler rather than only upon project closure.

Barriers

The majority of PMO leaders identified a lack of direct authority over project managers and/or teams as a barrier to learning from past project experiences. Other barriers include staff rotation, fear of airing mistakes publicly, deferring reflection until the end of the project, and difficulty accessing prior lessons learned.

- 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.
- Just under half (45%) of participants noted time pressures and resistance to the "extra work" required of PMO processes as a barrier to cross-project learning.
- Just under half (45%) of participants also identified staff rotation as a barrier to cross-project learning.
- 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.
- 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
  - Lack of senior management support
  - Organizational members' difficulty accessing past lessons learned

Enablers of Cross-Project Learning

One of the two most frequently occurring enablers of cross-project learning expressed by PMO leaders was the quality of their relationships with others, particularly those over whom they have limited direct authority, including project team members, project managers, senior managers, and others coming in and out of the project environment. Appendices R and S provide an overview of the data that contributed to Finding 3.

Network of Strong Relationships. A majority of the PMO leaders (60%) expressed that they were able to facilitate cross-project learning because of the quality and/or quantity of good relationships they had established across their organization. For example, Patty expressed how her close relationship with the senior management team enabled her and her group to more effectively fulfill its responsibilities:

> I have a seat at the Senior Executive Table, and as such, I'm involved in all the strategy, all the discussion of what's going on; and have that unique ability to knit the 30,000 view to the 3,000 view to the 3-foot view. And as a result of having 360-degree observation of the organization and a firm pulse across all levels, it's the only way that you're going to be able to have some of the stuff be identified, and address it in a way in which it's going to be a value to the organization.

Similarly, Cathy explained how her personal network in combination with her role in the PMO helps her to learn about problems "on the ground":

> 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. You know, an individual Tower Manager or a Director in a certain area wouldn't be looking over across the whole organization, whereas the PMO is. So they would come here.

Senior Management Support. A majority of participants (60%) also reported that senior management support is a key enabler of their ability to facilitate learning and

continuous improvement. Victor described how support from his senior leadership helped him to gain buy-in from project teams in conducting post-mortems:

> You know, once they've implemented, now they've got to do some sort of post-mortem work? It's a lot of energy and effort on their part. 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, once the project's done, I think it's a good indication that they see value in making sure that we have Post-Implementation reviews.

Similarly, Wendy talked about the importance of a senior "champion" and how it helped her establish more credibility for the PMO:

> He would basically make decisions happen where they wouldn't have if I didn't have his sponsorship. I don't know if you've worked in a large organization, but if you don't have that Godfather, you could be waiting till the cows come home. Because it's a greatest idea, but if no-one listens, it doesn't really matter. So really decision-making, visibility. I mean he actually championed me all the way up to the Chairman of the organization, which was really nice, for the PMO, the credibility of the PMO, but also for myself professionally. You know? So that's kind of how we promoted the PMO, because he believed in us.

In response to questions about how her group overcomes the problems associated with a lack of direct authority, one PMO leader in the summative focus group explained the key supporting role that "project sponsors" and other senior managers have played in her efforts to facilitate cross-project learning:

> Well, that's where we really rely on the sponsors, the management team members who act as sponsors, to be advocates for the PMO process. Otherwise just having a PMO with senior folks who really aren't that interested in it, definitely didn't work for us. So the idea of-- You know, our Steering Committees always have senior management on them who are well aware of the process we want to follow around toll gates or certain documents or go/no go decisions.

Learning-oriented Culture. Some the PMO leaders (30%) expressed that their organization's "way of doing business" plays an enabling role in their efforts to facilitate

cross-project learning. Rachel, for example, discussed how, after three years of evolution in the PMO, they have developed a culture that favors continuous learning:

> The only thing I would say is that we always do [lessons learned]. So I don't want to overplay that there was this one bad project and we had to take a step back. I think as good Project Managers and given the structure we've put in place, you don't wait. There's no ceremony. It's just, "Let's keep looking at what's going right or wrong here and making sure we're adjusting course."

Similarly, Mitch described how his organization's culture also enabled learning to occur routinely:

> [lessons learned practices] are culturally engrained. We've been doing those for years, whether it's on projects, other things, do well/do better is a cultural norm for us, so there were really no barriers there.

Neutral Facilitator for Lessons Learned Sessions. One quarter of the PMO leaders talked about how having a "neutral facilitator" for lessons learned sessions helps to promote a more productive discussion. For some of the participants, this meant having someone other than the project manager facilitate the lessons learned session. For others, it meant ensuring that the process was run in a fair manner, focusing less on blame and more on planning for how to prevent the problem from recurring. In some cases, the PMO considered itself more "neutral" and therefore was in a better position to conduct the exercise and in other cases, outside parties would be brought in to perform this function, possibly a project manager from another team. Patty describes in detail how not only does her PMO staff facilitate the lessons learned workshop, but they also attempt to create an environment conducive to fostering productive dialog:

> Because one of the things that we think is very valuable and beneficial to the organization as a whole is the fact that we are probably the one neutral department in the organization that doesn't own a piece of the business in any way, shape or form...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. We make sure that there's ground rules established at the beginning of each lesson 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. And ideally, the recommendations or the output from the lessons learned workshop shouldn't just be complaints, but it should be actionable.

Likewise, one of the project managers in the project manager focus group talked about how they emphasize "the process" not "the people" in their lessons learned sessions:

> When we do lessons learned, we talk about some of the situations, what worked and what did not work. If it's emphasizing the person, then it becomes counterproductive. But if we emphasized the process...That's how we try to make it more of a beneficial process for all of us.

Another one of the project managers confirmed the need for effective facilitation, saying, "Yeah. It's like emphasizing the positive and not the negative. Because the tendency is to emphasize, especially in post-mortems -- It becomes a "blame-storming" more than anything else."

Professional Development. One quarter of the PMO leaders also pointed to professional development as an enabler of cross-project learning. Professional development activities facilitated project learning in a number of ways. In one case, training was provided that equipped staff with the skills required to conduct productive lessons learned sessions. In another case, the organization required that each project member attain a certain number of professional development "credits" as part of their annual performance objectives. They could obtain these credits by attending the knowledge-sharing meetings setup by the PMO. In yet another case, the organization sponsored a number of employees in a Master's program, through which they developed

close relationships and now work at the highest levels of the organization as advocates of improved project management practice. Karen described how she and her colleagues benefited from this professional development activity:

> 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. So the 10 of us became very close in the cohort. As it turns out, one of my classmates is now the Director of Strategic Planning.

In the summative focus group, Rachel described how she pairs junior project managers with more experienced ones that can provide mentoring on an as-needed basis:

> We set up that kind of mentoring, or however you'd want to say it. The Project Manager has another PM to go to (and I'm always available too) but just the idea of having another PM to go to, who you can be in the trenches with the stuff on, that could help mentor and guide through any particular process. You know, it seems to be very favorable. There's no appraisal piece to it. It's just, "Here's it is. Let's talk about it," and then the PM gets to move on with it.

Reflection Throughout the Project. Reflection throughout the project rather than only upon project closure, was identified by 10% of the PMO leaders as an enabler of cross-project learning. Patty described in more detail how she works with her organization to encourage reflection throughout projects rather than only at the end:

> So the two ways in which we try to achieve that, or get around that particular challenge is we highly encourage that 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. Then through our guidance and facilitation of the formal lessons learned, we'll try to set that up in a way in which we try to kind of refresh their memories.

Similarly, in discussing his organization's lessons learned practices, Mack mentioned that "instead of doing the lessons learned at the end, we ask teams to actually do it at the end each of each phase."

Barriers to Cross-Project Learning

All the PMO leaders identified various barriers that impeded their and their organizations' efforts to learn from past project experiences. Following is a discussion of these barriers. The data contributing to this sub-category of Finding 3 is included in Appendix S.

Lack of Direct Authority. Just over half (55%) of the PMO leaders in the study pointed to a lack of direct authority over project teams or project managers, making it more challenging to ensure past learning is incorporated into new project activities. Melissa, a recently appointed PMO leader, described her reactions after attempts to begin working with a problematic project team:

> 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? She's not our manager?" You know, "Who cares?" That was a huge barrier, and that's always a huge barrier, coming in as a PMO when you don't actually have these people reporting to you.

Robert, a more established PMO leader faced with similar challenges, described how he'd change things if given the authority:

> Get me out of IT. Get me into the Enterprise. Give me all the projects, all the project managers, all the initiatives, all the products and I will save you money and will get this [stuff] done on time, on budget.

The lack of direct authority meant that for some PMO leaders, project teams were seen as working in "silos." In the cases where this occurred, the PMO leaders expressed frustration that project teams sometimes worked at "arms length." Karen, for example,

said, "You know, it's not easy to find out the details of what's going on sometimes when you're on the outside of a project." Similarly, Antonio described his relationship with project teams and how he is limited in his capacity to share or transfer lessons learned:

> A lot of these project teams sort of work in their own individual silos, if you will, and they go off and do their work. Right now the only mechanism for sharing best practices is, you know, when I'm able to communicate with them [informally]. You know, communicate to the individual project teams.

Mack demonstrated how the lack of direct authority over the project managers can lead to uncertainty about whether or not past learning is being incorporated into new projects:

> Right now there's no way for us to check if [project managers are using the lessons learned recommendations from their knowledge sharing forums] and have they thought about those recommendations and why they decided to do it or not to do it. So that's one issue we have.

In a striking confirmation of the frequently reported lack of direct authority, a project manager talked about how another PMO was created by one of the company's business units outside of IT, placing his PMO within IT in a precarious position:

> The biggest issue in our environment has been new PMOs, that just sprung up recently, that have nothing to do with our PMO model. I think that they argue with the idea of, "What's the value of us always going to that group for expertise? I can hire the same people you guys hired. We can hire our own PMO Leader and we don't have to strive to your methodology. We can make it work for us."

Time Pressures. Just under half of the PMO leaders (45%) identified some combination of time pressures and/or resistance among organizational members to engage in what they perceive as "extra work."

Time pressures sometimes result from project members being pulled into new projects immediately after their last project ends, making it difficult to take time for reflection. Sarah described how this phenomenon impedes her ability to improve future projects:

> So if I were the queen of the world, then I would ask for more reflective time, time to actually decompress and-- What's the word? And bring about a learning environment which is, "Yeah, just give us a little more time to get our breath before we move on to the next one" because that's how you learn the lesson. You know? Okay. 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 the hell am I supposed to apply them as quickly as we're doing the projects?"

Time pressures are also cited as a reason why project members may not want to take the time to follow PMO processes related to lessons learned. Darla, the PMO leader in the organization that requires documented lessons learned in order to maintain an internationally recognized quality certification, talked about the "pushback" she sometimes receives on these requirements:

> They're pretty hardcore here about requiring so much documentation, so much follow up, so many metrics. Some of them make sense for some projects and some of them don't make any sense for some projects, so I think there's a lot of pushback in getting that done. You know, when you didn't have to do it before and you suddenly do, it is a lot of extra work.

The perceived burdens of "extra process" were also highlighted by a project manager who said the following in response to the interviewer's question, "What do you think PMO leaders perceive to be their responsibilities related to the transfer of lessons learned?":

> I think that their perception of a PMO is the governance, more governance and setting the rules, setting templates, and they're almost making these

> templates and rules as a goal by itself. I think this is where you get, not all of it, but many of the perceptions.

People Rotating in and out of Roles. Just under half of the PMO leaders (45%) also expressed that people moving in and out of project-related roles at all levels, including project managers, team members and senior decision-makers, impeded their ability to ensure past lessons learned were consistently incorporated into new projects. Debra explained how people rotating in and out of roles confounded her efforts to ensure past learning was brought forward:

> And that's the one thing that I'm constantly dealing with now, is the change of roles and responsibilities within the business as well as the Application Development area, keeping track of who's who and, "Who else do I need to bring up to speed? Who else do I need to convince? "Who else do I need to see the light?" Because that constantly changes.

Similarly, June explained the problematic impact of organizational changes and the shifting roles and responsibilities that result:

> But as a PMO, you've got people coming in and out of jobs all the time, coming from one role to another role, and are at different levels of maturity within the role that they play. If you only focus on the setback schedules, the milestones and the templates, you'll fail, because you have to be adaptive to the organizational constraints.

Fear of Publicly Airing Mistakes. Some of the PMO leaders (35%) pointed to project members' fears of publicly airing mistakes as a barrier to learning from past project experiences. Debra pointed to fears of airing mistakes publicly as a reason why she was often not invited to project teams' lessons learned sessions:

> That's why I'm not always invited to them because it's kind of like, you know, "We don't need to air our dirty laundry." They do create the lessons learned and they are attached (sometimes they're not). You know? So if I know a post-mortem has gone on, then we'll double-check to make sure

> that the information has been attached. But we don't-- Sometimes there's sensitivity to it, so we don't need to add salt to the wound.

Similarly, Cathy talked about how project teams might not want to relate their experiences publicly because of the sensitivities involved:

> 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. You know? Like we had that knock-down, drag-out fight and we really don't want anybody to know about it? Not that that happened. But do you know what I mean?

Sarah talked about her experience with a project manager she feels was afraid to "speak up" when problems started occurring on a project, leading to larger problems and an eventual "no-go" decision by her management team:

> Unfortunately, it was because the Project Manager wasn't as good as she should be and she was covering things up. You know, the price of failure was too much for her to pay, but then, you know, it caught her at the end. So every week on week, when I'd been asking, not just about me, but certainly because-- We're talking about the PMO meeting. Week on week, when I was asking, "Are there any issues? Are there any resourcing constraints?" You know, whatever. It was like, "No, no. We're fine. No, we're fine."

In reaction to the finding that fear of airing mistakes was a barrier to cross-project learning, a project manager in the project manager focus group related her thoughts about this phenomenon and how it can occur in the project environment:

> That's what I was going to bring up, especially when you have a string of projects that were say green. And then all of a sudden, you're on somewhat of a turbulent project, where it's turning red, there's a tendency to somewhat dismiss it. Because well, you don't want to kind of admit that there's something wrong. And also your Manager or whoever it may be, may tend to distance it because they had such a great experiences prior to this as well. (Project Manager 3)

Reflection Deferred Until End of Project. One fifth of the PMO leaders highlighted the problem of retrospective recall and how conducting lessons learned sessions at the end of a project's lifecycle can limit participants' ability to learn from past project experiences. Patty discussed this problem and how it can create a barrier to project members' learning from their project experiences:

> Because sometimes, particularly in project teams that have been out there for a period of time, it's hard to do a formal lessons learned at the end and have them remember everything…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. I think that there's always that lag and delay of what happens to when we find it, and where we find it. It's always challenging.

Similarly, Mort described how he would change his status meeting approach so that reflection occurs more often over the course of projects:

> When we're having status meetings, we should be focusing not entirely on, "Okay. Where are we against these milestones? And what issues have we raised?" We should also be asking, "What's going well?" With our success, make sure we talk about them, to understand the "whys" behind it and the "hows" where others can hear it.

Lack of Senior Management Support. One fifth of the PMO leaders also identified a lack of senior management support as a barrier to cross-project learning. In these cases, PMO leaders expressed that senior managers often did not "walk the talk" when it comes to lessons learned, and some did not even "talk the talk." For example, Melissa described the "lip service" paid to learning from the past in her organization:

> Oh, the data that we get from post-mortems? You know, "Gather that. And yes, we need to investigate that and make sure that doesn't happen on the next one." You know, "Check into it on the next one." So there's lip service to that. All kinds. "Absolutely that's the right thing to do." But then, when it comes down to it, "Well, that's just another task and we don't have time for that."

In response to the question "In what ways does the organization support your efforts to learn from project work and share those learnings with your team and other PMs," Cathy described how the senior managers in her organization are often focused on status reporting rather than lessons learned:

> You know, it's hard to say. Because that gets back to the question of, "Are they looking for the lessons learned?" And they're really not. What they are looking for is the status reporting on the projects. They're looking to share that information to know where we are, in that regard.

Organizational members' difficulty accessing past lessons learned. One fifth of the PMO leaders also reported that it was difficult to share lessons learned with the right people at the right time, even if they are stored in databases accessible via the corporate intranet. Mack talked about why he perceives databases like this to be limited in value:

> So in the past, what happened was, you know, what they do is they do gather some lessons learned and sometimes they post it in a common repository. But nobody looks at it and nobody even sees what is in those lessons learned. As I said earlier many times, documenting and just even publishing it, nobody is going to look at that.

This was echoed by a project manager in the project manager focus group, who said:

> "It's more left to chance...They will put lessons learned [on an intranet site], and I've seen that it even translates into revising training, as needed. But it's more than a process. It's more word of mouth. They're shared among the PMs."

Chapter Summary

This chapter presented the findings from interviews with 20 PMO leaders and two focus groups. Each finding provides a response to each of the study's three research questions as follows:

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

Finding 1: Most of the PMO leaders perceive their primary responsibility as ensuring successful project delivery, while slightly more than half perceive that it is their responsibility to have project teams identify lessons learned at project closure in order to foster continuous improvement. Other responsibilities include consistency in project management practices and providing a learning and growth environment for project managers.

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

Finding 2: All the PMO leaders facilitated learning from past project experiences for the benefit of current and future projects by brokering practice connections between management, project teams and other communities of practice. Brokering activities include establishing project management processes common to multiple projects and coordinating sessions in which reflective practices are utilized to facilitate learning from past project experiences. Other ways PMO leaders facilitate cross-project learning include formal training, drawing on personal experiences, and personnel selection.

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?

Finding 3: The majority of the PMO leaders identified strong working relationships and support from senior management as enablers of learning, while insufficient authority over projects was the most commonly identified barrier. Other enablers include a learning oriented culture, a neutral facilitator for lessons learned, and

professional development. Other barriers include staff rotation, fear of airing mistakes, deferring reflection and difficulty accessing prior lessons learned.

In the next chapter, the researcher endeavors to analyze and interpret this study's findings in light of literature and prior research.

Chapter 5
Analysis & Interpretation

Introduction

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. The research employed a qualitative approach to study how a specific type of management intermediary, the Project Management Office leader, works within project environments to facilitate and transfer lessons learned from one project to the next. Snowball sampling was used to select 20 PMO leaders from a variety of industries and functional domains. Two focus groups were conducted – one with project managers who have worked for PMO leaders in the past, and one with a subset of the PMO leaders interviewed - to elaborate and confirm the interview findings.

The study has focused on 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 findings from the interviews and focus groups were presented in Chapter 4. The purpose of this Chapter is to 1) analyze the findings in order to shed additional light on the research questions, 2) to provide the researcher's interpretations about the meanings that can subsequently be inferred, and 3) to synthesize the analysis within the

context of broader issues related to organizational learning in project-based environments.

The chapter begins with an analysis of the brokering role that PMO leaders play in leveraging learning for the organization. As found in Chapter 4, all the PMO leaders indicated that they create 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 this finding in and of itself provides a limited picture of their brokering role. As will be shown, PMO leaders broker learning within the context of both boundary encounters and boundary practices, two other major categories of findings. It is therefore necessary to "thread through" the brokering activities of PMO leaders across these additional categories of findings 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."

The chapter then moves to an analysis of collective learning practices. The aim of this analysis is to shed additional light on the nature of the collective learning processes that PMO leaders help to establish and maintain. As will be shown, the findings from the collective brokering categories can be further characterized by their relative emphasis on retrospective versus prospective learning.

Finally, the chapter turns to a synthesis that includes additional interpretations of the findings and a revised conceptual framework that integrates emergent themes from the analysis with selected literature on cross-project and organizational learning. The chapter concludes by revisiting the assumptions from Chapter 1.

The PMO Leader's Role in Brokering Learning for the Organization

Wenger (1998) claims that the job of brokering is complex, involving "processes of translation, coordination and alignment between perspectives"(p. 109). The analysis begins with the assertion that reflection can be viewed as an additional dimension of PMO leader brokering. As will be seen, reflection, like translation, coordination and alignment, is a micro-process that occurs within organizational processes and events (i.e., boundary practices and boundary encounters). Following is an analysis of each of these dimensions of brokering, beginning with translation.

Translation

As shown in Appendix T, translation processes expressed by PMO leaders were manifested within the context of four other sub-categories of findings: Status Reporting & Governance (35%), Lessons Learned Practices (30%), Project Interventions (15%), and Process Improvement (5%). Translation efforts associated with status reporting often involved providing a "dashboard" or status report to senior management that rated each project red, yellow or green. These "traffic light" ratings were intended to provide a quick indication of the project's health. Red often indicated that a project was failing its stated timeline and objectives. Green indicated that a project was on track, while a yellow rating provided a warning signal that the project was at risk. Translation efforts associated with lessons learned often involved either outlining topics for reflection prior to the lessons learned session or providing feedback on the lessons learned once the outputs were codified.

Coordination

As shown in Appendix U, coordination, the second dimension of brokering, was expressed by PMO leaders within the context of five other sub-categories of findings: Project Intervention (35%), Knowledge Sharing Forums (30%), Lessons Learned (25%), Status Reporting & Governance (25%), and Process Improvement (15%). In each of these categories, PMO leaders coordinated either ad hoc or ongoing meetings with project teams, project managers and/or management in order to help these communities make meaning from past project experiences, share knowledge or improve project-related processes.

Alignment

As seen from Appendix V, alignment, the third dimension of brokering, was manifested within the context of two other sub-categories of findings: Transfer of Standards to new projects (50%) and Project Intervention (45%). PMO leader alignment efforts associated with the transfer of standards involved working with project managers, project teams or management to ensure that established methodologies and processes were being followed. In alignment efforts within the context of project interventions, PMO leaders addressed project related problems with project teams in order to ensure their work remained aligned with management expectations.

Reflection

Reflection is the fourth and final dimension of brokering. This dimension of brokering consists of two sub-dimensions: content reflection and process reflection.

Content Reflection. As seen from Appendix W, PMO leaders engaged in content reflection primarily as a diagnostic tool when intervening to improve troubled projects

(35%). They also engaged in content reflection within the context of Lessons Learned sessions (10%) and Status Reporting & Governance meetings (10%). It is important to note that approximately one third of the participants (7) also expressed that project teams utilized content reflection for the purpose of conducting lessons learned sessions as part of their ongoing project methodology. However, in these cases the PMO leader was not directly involved, meaning that these sessions were not considered individual PMO leader brokering occurrences.

Process Reflection. As seen from Appendix X, PMO leaders engaged in process reflection largely to improve processes common to multiple projects (30%). Process reflection was also manifested within the context of project interventions (15%). In these cases, the PMO leader encouraged reflection on the effectiveness of the organization's standard processes while attempting to diagnose and remediate problems associated with a troubled project.

Summary of the PMO Leader's Role Brokering Learning

As summarized in Table 9, PMO leader brokering activities associated with translation, coordination, alignment and reflection occur within the context of five other sub-categories of findings 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%).

Table 9: Summary of Brokering Activities

	Occurrences	Project Intervention	Status Reporting & governance	Lessons Learned Practices	Process Improvement	Transfer of Standards & Practices	Knowledge Sharing Forums
Translation	17	3	7	6	1	0	0
Coordination	26	7	5	5	3	0	6
Alignment	19	9	0	0	0	10	0
Content Reflection	11	7	2	2	0	0	0
Process Reflection	9	3	0	0	6	0	0
Total	82	29	14	13	10	10	6
Percent of Occurrences	100%	35%	17%	16%	12%	12%	7%

Additional analysis was performed on these results to determine whether or not there were differences for PMO leaders in information technology settings versus those in other functional domains. The analysis produced comparable frequencies for each category in approximate proportion with the mix of IT vs. non-IT PMO leaders in the sample, indicating that these themes persist both inside and outside of the information technology domain.

The researcher points to two possible reasons why project interventions feature so prominently in the brokering activities of the PMO leaders. First, the interview provided an inherent bias towards 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 why project improvement features so prominently in PMO leader brokering activities 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 Chapter 4, it was found that 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 emphasis on successful delivery as found may be more outcome or results-oriented than some of the PMO practitioner literature would suggest. Kerzner (2004), for example, proposes that the primary mission of PMOs is to maintain intellectual property related to project management and to support strategic planning. Likewise, Rad and Levin (2002) claim that the primary responsibility of PMOs is to provide an infrastructure for tools and expertise in the area of project management. Implicit in these views is that the ultimate responsibility for effective project outcomes lies elsewhere.

A focus on delivering effective outcomes is more in line with the conceptualization of the PMO described in the *Project Management Body of Knowledge* (PMI, 2004), where PMOs are seen as ranging from providing project management support functions to actually being responsible for the direct management of projects. In the latter case, the PMO would have full responsibility for project outcomes.

A mission focused on project outcomes entails a greater degree of accountability on the part of the PMO leader, requiring an ability to influence project teams and project members' work. A primary mission focused on activities such as maintaining intellectual capital or providing an infrastructure for tools and expertise does not suggest this level of accountability for influencing outcomes at the project level.

The researcher contends that it is this push for effective project outcomes that introduces tension in the PMO environment when projects begin to run afoul, creating the impetus for PMO leaders to intervene and "rescue" troubled projects.

This interpretation does not mean to suggest that learning from past project experiences only occurs when PMO leaders get involved. Scarbrough, Swan et al. (2004) have shown that learning in project organizations can be seen as "nested," occurring at different but interrelated levels simultaneously.

Moreover, it is clear from Finding 1 that PMO leaders encourage learning from project experiences even when they are not directly involved. As shown in Chapter 4, most of the participants' organizations had policies in place that required project teams to identify lessons learned upon completion of their work. This is compatible with Keegan and Turner's (2001) study, where it was found that all 19 companies participating had lessons learned policies in place. It is also consistent with Disterer's observation (2002) that "project closing is becoming the most important phase to identify and to capture new knowledge and to prepare the knowledge for transfer to other projects." (p. 515).

Although most of the participants' organizations had policies in place to identify lessons learned, the presence of these policies does not necessarily translate to full adoption in practice at the project team level. Keegan and Turner (2001) found that

although policies were in place to hold lessons learned reviews, it rarely happened. Worse, the authors found that "in no single company did respondents express satisfaction with this process" (p. 90). It may be that this gap between policy and practice also existed within the participants' organizations in this study, although confirmation of this is outside the scope of this research.

Having shed additional light on the nature of PMO leader brokering, the chapter now turns to providing additional insight on the nature of the collective learning processes which PMO leaders help to establish and maintain.

Analysis of Retrospective and Prospective Learning Practices

In conducting interviews with the PMO leaders, the researcher asked participants to provide separate examples of 1) situations in which they attempted to learn from a recent project experience and 2) situations in which they attempted to ensure a lesson learned was incorporated into a future project. The findings that emerged can therefore be distinguished along two additional dimensions: retrospective 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. These dimensions were chosen for analysis in order to shed additional light on the collective learning practices described in Chapter 4, providing the reader with a more comprehensive picture of the nature of these interactions.

To perform this analysis, collective brokering categories were analyzed to determine their frequency of occurrence within critical incidents that emphasized either

1) learning from past project experiences (retrospective), 2) transferring learning to future projects (prospective) or 3) both. For the purposes of this analysis, collective brokering categories include boundary practices and boundary objects as well as three emergent categories from Finding 2 - formal training, personnel selection and the personal experiences of project members. The findings related to these categories were presented in Chapter 4 along with representative quotes for each category.

As seen from Table 10 below, collective brokering categories that emphasize retrospective learning include status reporting & 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. While some instances of lessons learned practices include a prospective component, the great majority of the lessons learned practices focus on retrospective learning.

Table 10: Retrospective and Prospective Learning Practices

Conceptual Framework Category	Retrospective Cases	Prospective Cases	R=Retro, P=Pro B=Both	Representative Quote from Findings
Status Reporting & Governance	14	0	R	I found out through a report from the Project Manager and the head of the London Office, to say that the key deliverable for that phase with a "go/no-go" had been called a "no-go."
Lessons Learned Practices	17	6	R	About two weeks after every project, there has to be a lessons learned, a post-mortem. 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?"
Personal Experience	8	0	R	Part of getting this job was I took a lot of my experiences as a Project Manager and said, here's the things we need to look at from a PM's perspective.
Project Methodologies	0	17	P	In other words, there is some acceptance criteria that we have written for our vendors when they hand us something. "Okay, we're not going to take it unless you have this, this and this done." So those are things that we have learned, as we've moved forward and brought into future projects what we've done.
Knowledge Sharing Forums	0	10	P	Every month, I sponsor the "Lunch and Learn" where I have like all 30 employees and consultants in the tank, and that's where I'd get an hour and a half with them. And in there, we would talk about lessons learned...
Formal Training	0	9	P	You can take how to run projects from a pure state, and then you can also put the Consumerco pieces into that training. And that's what this particular organization was able to do. The head of the training was able to make that connection with them and to have it customized so that, not only did you get the theory, but you actually got a lot of the practical sides of the pieces that we require here.
Personnel Selection	0	3	P	So he and I decided that, as a direct lesson from Australia, remembering that very, very, very well, and others, that we would make it immediate policy that no Technical Manager was allowed to be a Project Manager anymore.
Tools and Templates	12	14	B	*Retro and Pro:* So we have a document that outlines all of the product information needed to actually build a product. Then it becomes the product record, so to speak. So that the next time the product needs to be upgraded or modified, you can go back to that sort of source document and then work from there...
Systems	8	9	B	*Retro*: But the status reports are out there on the web intranet site that anyone can reference any time. *Pro*: We put up a site to house the various templates and examples of-- You know, not magic, but actually put up a project management site so people could find these templates
Documents	8	3	B	*Retro*: We prepare a slide deck...that includes everything that happened on the [most recent phase of the project]. *Pro*: What we did was we documented [the lesson learned] and are now working with our vendor to [implement it].

Additional analysis was also performed on the above collective brokering categories to determine whether or not there were differences in their frequency of occurrence for PMO leaders in information technology settings versus those in other functional domains. The analysis produced comparable frequencies for each practice in approximate proportion with the mix of IT vs. non-IT PMO leaders in the sample, indicating that these practices tend to occur both inside and outside of the IT domain.

Although the analysis points to practices that emphasize either retrospective learning, prospective learning or both, they nevertheless appear to be intertwined in what Vera and Crossan (2003) describe as an "iterative, mutually reinforcing" process, where learning produces new knowledge and new knowledge impacts future learning (p. 493). Lessons learned practices are an illustration of this phenomenon. Reflective processes in lessons learned sessions are a form of collective brokering that produces retrospective knowledge. This knowledge may then be embedded into the organization's project methodologies, enabling prospective project teams to utilize the learning for future project learning. Likewise, the retrospective personal experiences of project members may be exchanged in knowledge sharing forums or embedded in formal training programs in ways that influence the learning of prospective project teams.

All boundary objects - documents, systems, tools and templates - were utilized within the context of both retrospective and prospective learning. This is not surprising considering Wenger's (1998) conception of boundary objects as forms of reification "around which communities of practice can organize their interconnections" (p. 105). For Wenger (1998), learning and knowledge occur through the convergence of two processes that continually interact with one another: participation and reification. Boundary

practices are forms of social participation, while boundary objects are reified products of these interactions. Based on this conception, boundary practices would entail the use of boundary objects regardless of whether the learning is retrospective or prospective in nature.

Synthesis

To begin this section the researcher focuses on the challenges of brokering by drawing on Finding 3 - enablers and barriers to cross project learning. To conclude, a revised conceptual framework is presented, which serves 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 Challenges of Brokering

As discussed in Chapter 2, 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. As a result, "brokers sometimes interpret the uprootedness associated with brokering in personal terms of individual adequacy" (Wenger, 1998, p. 110).

It is not surprising then, that 55% of the PMO leaders 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 in order to gain the cooperation and attention of project managers, teams and management.

Due to the frequent mention of a lack of direct authority, additional analysis was performed to determine whether or not there was a difference in perception among those who report to "c-level" executives versus those who report "further down" in the organizational hierarchy. It was found that c-level participants expressed a lack of direct authority in approximately the same proportion as those who report elsewhere, suggesting that organizational position does not necessarily make a difference in respondents' perceptions about a lack of authority in their ability to facilitate cross-project learning. The researcher posits that it is not necessarily organizational position that creates the required level of authority, but the perceived legitimacy of the PMO leader, regardless of where they report.

According to Wenger (1998) brokering requires the ability to "manage carefully the coexistence of membership and non-membership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to" (p. 110). 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.

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 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 legitimacy, 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. 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). It appears that the social capital of the PMO leader is an important factor in their ability to gain the legitimacy required to facilitate cross-project learning, particularly when they lack a direct line of authority over project participants.

Defensive Routines. Insufficient authority was not the only challenge reported by PMO leaders. As shown in Chapter 4, 45% of interviewees also reported time pressures as a barrier to learning from past project experiences. One might simply surmise that if organizational members do not have the time to engage in learning practices, that 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 Chapter 4, 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; 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, launching the next project and generating more activity.

Argyris (1995) and Argyris and Schon (1996) describe organizational defensive routines as "any action, policy, or practice that prevents organizational participants form

experiencing embarrassment or threat and, at the same time, prevents them from discovering the causes of the embarrassment or threat" (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. One could envision defensive routines at work not only at the project team level, but also at the PMO leader level and among management team members. Each of these communities, either by their action or inaction, may have the potential to be seen as a contributor to the problem. Of course, project team members – and especially project managers – would be under a more acute threat to their individual careers. The point here is that the PMO leader and the senior management team, because of their relative positions of power, can inadvertently undermine their own ability to "know the truth" about what is happening at the project level. After all, defensive routines are likely to emerge if project members have the potential to be associated with a "mistake."

In sum then, it is the contention of this researcher that 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.

Although further research is needed to understand their role in project interventions and lessons learned sessions, defensive routines likely undermine attempts

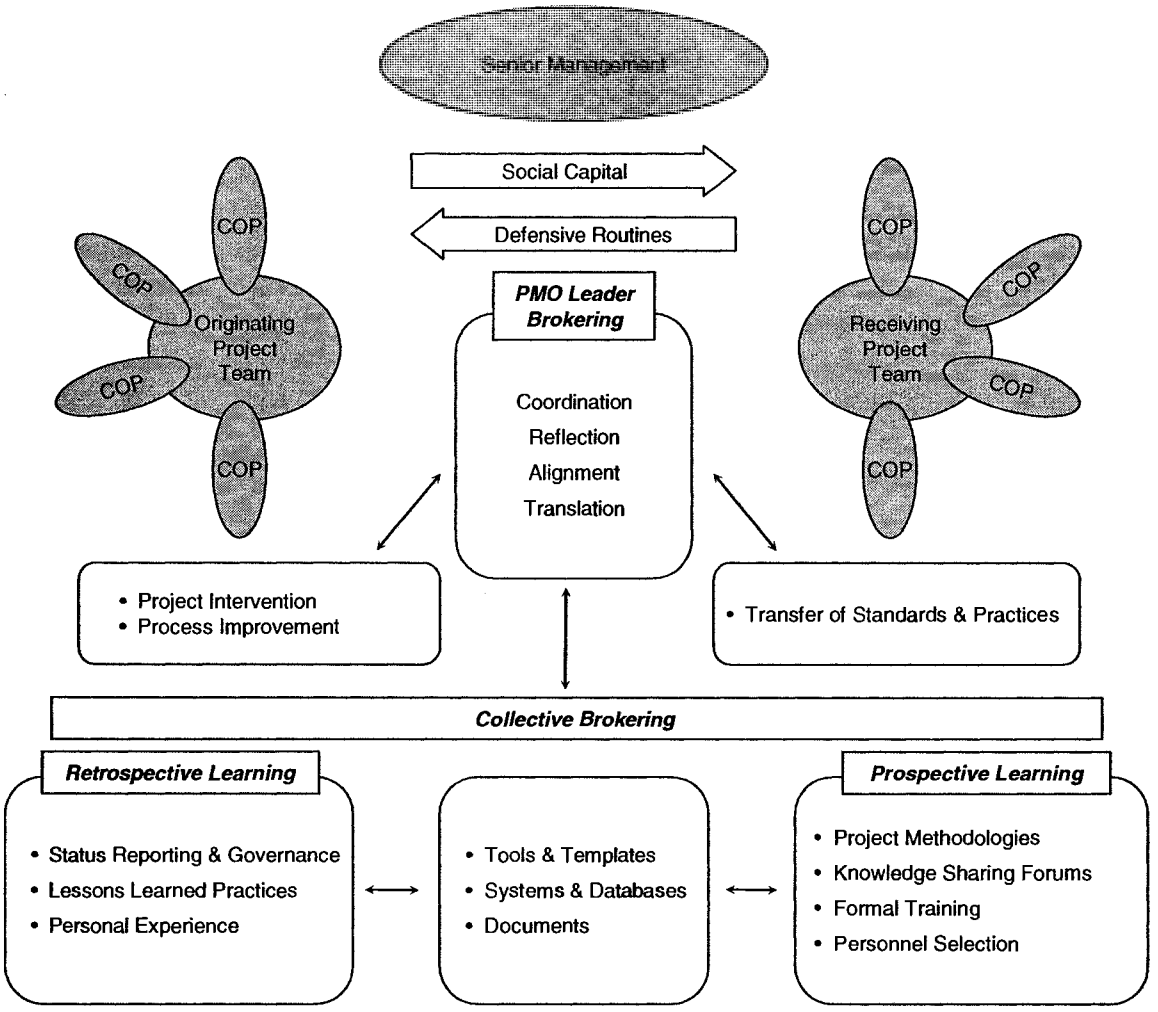
to reflect constructively on past project experiences for the benefit of current or future projects.

Revised Conceptual Framework

The initial conceptual framework for this study drew upon 1) Wenger's (1998) theory of situated learning and communities of practice; 2) previous studies from the project based learning literature; and 3) selected literature on workplace reflection. A revised conceptual framework is now presented which builds on this initial framework, incorporating the findings from chapter 4 as well as the additional analysis and interpretation presented in this chapter.

The revised conceptual framework is presented in Figure 4 on page 144 and includes the following elements: organizational context, PMO leader brokering, social capital, defensive routines, and collective brokering. Following the figure, each of these elements is discussed.

Figure 4: Revised Conceptual Framework



Organizational Context. Consistent with Wenger's (1998) view that organizations are constituted by multiple communities of practice, we find the PMO leader to be immersed within a "constellation of practices" from which and through which knowledge about past project experiences may be negotiated and shared. The PMO leader works within the context of these communities which include senior management, project teams, the PMO organization itself and other functional departments. Project teams may consist of members from multiple communities of practice within the organization, often

from various functional departments or areas of specialty. Over time, the project team may also develop a community of practice of its own.

PMO Leader Brokering. As discussed in this chapter, PMO leaders engage in brokering - the process of establishing connections between communities by "introducing elements of one practice into another" through processes of translation, coordination, and alignment among and between these perspectives (Wenger, 1998, p. 105). Reflection is also seen as an additional dimension of PMO leader brokering. All of these processes are therefore represented in the revised conceptual framework.

The PMO leader brokering analysis in this chapter indicated that PMO leaders not only broker in support of boundary practices such as status reporting & governance, lessons learned practices, and knowledge sharing forums, but that they also intervene in the project environment to 1) improve projects, 2) improve processes common to multiple projects, and 3) transfer standards and practices to project teams. These elements are also represented.

Social Capital and Defensive Routines. Two broad themes emerged from the additional interpretation of the enablers and barriers to cross-project learning. Social capital is seen as a key enabler, while defensive routines are viewed as a key barrier. Project-based learning researchers have drawn upon the concept of social capital to describe how knowledge, particularly context-dependent, tacit knowledge, is more effectively shared and diffused across projects and organizations by individuals who have developed strong mutually beneficial relationships and have therefore gained a degree of social capital (Bresnen et al., 2003; DeFillippi & Arthur, 1998; Newell, 2004; Walker & Christenson, 2005).

Argyris (1995) and Argyris and Schon (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" (p. 22). As discussed previously in this chapter, "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 [the lessons learned process]" (p. 90).

Both social capital and defensive routines are represented in the revised conceptual framework.

Retrospective and Prospective Collective Learning Practices. From the collective brokering analysis in this chapter, processes were classified as either retrospective, prospective, or both. Retrospective learning practices include status reporting and governance, lessons learned practices, and the personal experiences of PMO leaders and their staff. Prospective learning practices include project methodologies, knowledge sharing forums, formal training, and personnel selection.

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 et al., 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. Collective brokering practices are a

means through which "lessons learned" are transferred from one project to another. Newly established project managers and project teams experience these practices, with previous lessons "built in," as a form of legitimate peripheral participation (Lave & Wenger, 1991).

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 has 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. Templates and systems are forms of boundary objects that facilitate knowledge transfer through processes involving participation and reification (Wenger, 1998). Consistent with Antoni et al. (2005), process knowledge resides in the form of templates, checklists, manuals and guidelines, representing an accumulation of experience in project delivery.

Drawing on the work of Zollo & Winter (2002) and Feldman & 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.

The revised conceptual framework informs the cross-project and organizational learning literature in two ways. First, previous researchers have pointed to the potentially broader applicability of process knowledge versus product knowledge, suggesting it may be a more useful mechanism by which to transfer knowledge from one project to the next (Antoni et al., 2005; Newell et al., 2006). This study confirms that process knowledge can indeed be useful in the project environment, as it demonstrates how PMO leaders utilize process knowledge in the form of project methodologies, tools and templates to inform the work of prospective project teams.

A second way in which the revised conceptual framework informs the literature is by demonstrating that PMOs can be viewed as a way to facilitate organizational learning in project environments. As discussed in Chapter 1, 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.

Revisiting of Assumptions from Chapter 1

As discussed in chapter 1, the researcher held three major assumptions related to this study. Following is a discussion of each of these assumptions in light of the resulting findings and analysis presented in Chapters 4 and 5.

First, it was assumed that PMO leaders participate in project reviews and hold informal conversations with project members across multiple projects. It was assumed that these interactions would provide them with insight into the activities of each of these projects and their associated learning outcomes.

As seen from Chapter 4, a majority of the PMO leaders did in fact report that they maintained status reporting and governance processes, explaining that the purpose of these processes was to provide them and management with updates on the performance of ongoing projects. Yet despite the researcher's mentioning of "hallway conversations" as a way in which they might have learning about project activities, these types of informal interactions were not as prevalently reported as first assumed. This may be due to the limitations associated with retrospective recall. For example, an incidental hallway conversation might have triggered a PMO leader to further inquire into a project's activities, yet when the researcher asked "how did you find out about that?," participants either did not recall or they attributed their involvement to more formal mechanisms such as routine one-on-one sessions with project managers or status reporting and governance practices.

Second, the researcher also assumed that PMO leaders would play a brokering role in connecting project members for the purpose of cross-project knowledge sharing as found in other studies where management intermediaries were found to place project

managers in contact with others who have had related experiences. Although there were clearly cases where this was reported to occur, these connections were most often facilitated within the context of established boundary practices, particularly project methodologies. For example, a number of the PMO leaders reported that they have established processes whereby upon initiating a new project, they routinely transfer knowledge about established routines. Some mentioned that they connected the new project manager to others with related experiences; one even had an established mentoring process whereby a new experienced project manager would be paired with a more experienced project manager who may have encountered similar projects before. However, this was clearly an exception. This may be either because they do not routinely perform this type of brokering between project managers in this way or it may also be due to the nature of the interview protocol. For example, the researcher did not expect such a predominance of knowledge sharing forums coordinated by PMO leaders, where project managers would meet to discuss past project experiences and share their learning. It may be that these practices overshadowed the individual, one-off, brokering reported by the PMO leaders in their retrospective recollections. This activity may have been more explicitly found, however, if the interview protocol was not semi-structured and instead explicitly asked the question whether or not they performed this type of activity.

Third, it was assumed that PMO leaders would be engaged in defining and implementing project management standards which may be based in part, on the insights gained from observing project successes and failures within their organization. This assumption was clearly confirmed in the study's findings. PMO leaders seemed to "make it their business" to implement standards and guidelines. Moreover, the participants

reported a number of examples whereby they incorporated past learning into new projects either through their active involvement in aligning new project teams with these standards or by ensuring these standards were made available to others through established boundary practices.

Chapter Summary

This chapter began with an analysis of PMO leader brokering across other categories of findings in order to shed additional light on the brokering role PMO leaders play within their organizations. The chapter then moved to an analysis of collective brokering processes, classifying these findings as retrospective learning, prospective learning, or both. The researcher endeavored to 1) analyze the findings in order to shed additional light on the research questions, 2) provide the researcher's interpretations about the meanings that can subsequently be inferred, and 3) synthesize the analysis within the context of broader issues related to organizational learning in project-based environments.

The chapter concludes with a revised conceptual framework which serves as a vehicle for synthesizing the resulting findings, analyses and interpretations. The revised conceptual framework includes the organizational context consisting of a constellation of practices, PMO leader brokering, retrospective learning practices and prospective learning practices.

Finally, the researcher revisited the assumptions from Chapter 1, describing variations in what was found compared with what was assumed prior to collecting and analyzing the data.

The next chapter builds on this chapter's analysis and describes a number of conclusions that can be drawn from this study, presenting recommendations for both PMO practitioners and for future research.

Chapter 6
Conclusions

Introduction

The purpose of this study was to shed light on the processes by which PMO leaders help their organizations learn from past project experiences in order to continuously improve project performance over time. Based on this study's findings, the researcher arrived at four conclusions. These conclusions are presented below, followed by recommendations for PMO leader practitioners, as well as recommendations for future research.

Overview

This research employed a qualitative approach to investigate the perceptions and activities of twenty PMO leaders from a variety of industries and functional domains. Consumers of the research will need to assess whether or not the resulting findings and conclusions may be relevant to their individual situations. With this in mind, the researcher presents the following five conclusions.

Conclusion 1

The first conclusion drawn from this study is that PMO leaders are knowledge brokers who facilitate connections among multiple communities in order to facilitate learning from one project to the next. PMO leaders are uniquely positioned to facilitate the deployment of reflective practices and to embed this learning into future project activities for two reasons. First, by virtue of their organizational position, PMO leaders are able to see patterns across multiple projects and identify learning opportunities based on those observations. Second, PMO leaders oversee the design and implementation of processes that are common to multiple projects, and as seen from this study, most of

these practitioners have recognized the importance of embedding lessons learned practices into project methodologies within their organization.

Conclusion 2

The second conclusion is that organizational routines that can be utilized by multiple projects can provide project organizations with a repeatable way to generate and transfer learning from past project experiences. 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). As discussed in Chapter 1, however, project organizations present a unique challenge to organizational learning because projects may be perceived as "one-off" or unique. Moreover, project teams disband upon the completion of their work, leaving no "formal corpus" behind to carry the learning to future activities. 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 drawn from this study is that both the learning process and the transfer of learning via organizational routines are shaped by relations of power, requiring that PMO leaders attain a degree of social capital in order to effectively

facilitate cross-project learning. Project managers and teams must factor in the interests of the PMO and the processes which it requires when planning approaches to new projects. Likewise, the PMO leader must factor in the interests of project managers and teams when designing new or improved routines to ensure they can be effectively adopted. Where the PMO leader faces challenges to their legitimacy, both the learning process and the transfer of learning via organizational routines can be undermined by the relative power of project teams and senior management, both of whom may be more worried about effective outcomes than the processes by which these outcomes are achieved.

Conclusion 4

The fourth 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, where the organization focuses most of its formal reflective practices on failing projects, project team members may be inclined to avoid embarrassment or threat and may find ways to divert attention to other less threatening issues. As a result, the learning that occurred at the individual or group level may not be adequately represented, making it more likely that future project teams be required to "re-invent the wheel."

Conclusion 5

The fifth and final conclusion that can be drawn from this study is that although most PMO leaders engage in reflective practices, they may not be aware of the value of these practices when it comes to facilitating organizational learning from one project to the next. As discussed in Chapter 5, most PMO leaders engage in reflective practices in

order to bring "runaway" projects back into alignment with management expectations. It may be that reflective practices are utilized more as a short-term "fix" rather than a way to make project team's tacit knowledge explicit for the benefit of future project teams.

Recommendations

This section presents recommendations that are based on the findings, analyses, and conclusions of this research. Recommendations are offered for both PMO practitioners and for future researcher in project based learning. Table 11 below provides an overview of these recommendations.

Table 11: Overview of Recommendations

Recommendations for PMO Leaders 1. Focus on accumulating social capital across multiple communities by establishing a network of strong relationships built on trust, professional development and mutual understanding. 2. Focus equal emphasis on learning from successful projects as those that appear to have failed or run off-course. 3. Reflect over the course of the project rather than just at project closure. 4. Provide useful process knowledge to project teams by asking "why" questions in lessons learned sessions and embedding stories and examples from past project experiences into standard methodologies and templates. 5. Establish conditions more conducive to productive reflection in lessons learned sessions by utilizing a skilled facilitator and focusing on processes rather than people.
Recommendations for Future Research 6. How do defensive routines limit the learning that can be achieved from lessons learned practices? 7. What kind of knowledge is most useful to project managers and teams and in what situations? 8. To what extent are standards and practices implemented by PMOs built upon internal learning and experience? 9. What are the factors that make one PMO more effective than another in their ability to facilitating learning?

Recommendations for PMO leaders

The researcher provides the recommendations that follow to PMO leaders who endeavor to improve their organization's ability to learn from past project experiences. Overall, these recommendations are aimed at establishing conditions in which organizational members can reflect productively on past experiences by increasing the social capital of the PMO leader and 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 among 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. This is true even for those who report into the highest levels of management (C-level direct reports), as formal authority does not always equate to perceived legitimacy among constituents. 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 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 formal learning practices are

continually focused on poorly performing projects, the organization risks enculturating learning practices as a punitive endeavor, making engaging in this process a less-than-appealing prospect for organizational members. Moreover, if learning practices are primarily focused on troubled projects, then the improvements that result in the form of organizational routines may be distorted towards eliminating risk and establishing tighter controls to prevent such problems from recurring. This may shackle future project teams with burdensome processes that limit their innovative potential. 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 to discover the 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 just at the end. Performing lessons learned sessions upon project completion is 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 lessons learned sessions highly selective and potentially less than useful for future teams. It is recommended that PMO Leaders actively promote formal reflective processes throughout the course of projects. This can be accomplished in a variety of ways at a variety of levels. For example, project members may be encouraged to maintain a personal journal to capture their thoughts and emotions along the way. Further, project status meetings can

be improved by including updates not just on milestones and deliverables, but also on the processes the team used or did not use to get those results.

Recommendation 4: Provide useful process knowledge to project teams by asking "why" questions in lessons learned sessions and embedding stories and examples from past project experiences into standard methodologies and templates. Most of the lessons learned practices described by PMO leaders focused on "what worked and what didn't" with respect to past project activities. It is recommended that these reflective questions be supplemented with the question "why" something worked or did not. This may generate more useful knowledge for not only the project team reflecting on the experiences, but for prospective project teams who need to heed this advice on future projects. Asking "why" can evoke richer, contextual information about why the practice worked or did not so future project teams can make informed choices about their planned approaches. This richer, contextual information may also be accompanied by what was formerly tacit knowledge on the part of the originating project team, making this knowledge more accessible to the organization.

Recommendation 5: Establish conditions more conducive to productive reflection in lessons learned sessions by utilizing a skilled facilitator and focusing on processes rather than people. 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 dominate 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 rather than focusing on the performance of specific individuals, thus creating an atmosphere less conducive to defensiveness, blame or individual heroics.

Recommendations for further research

This was an exploratory study of PMO leaders and their role in facilitating cross-project learning. More research is needed to add more depth to these findings, particularly at the project team level. As such, three areas for further research are suggested for prospective researchers of project based learning.

Recommendation 5: How do defensive routines limit the learning that can be achieved from lessons learned practices? It was evident from some of the stories in this research that defensive routines may distort the learning process during lessons learned sessions. However, the scope of this study did not include an in-depth investigation of the learning processes at the project level. Further research is needed to highlight the dynamics present in lessons learned sessions and how relations of power may influence conditions that foster distorted learning processes. Research of this nature would be highly valuable given the amount of time and effort expended on lessons learned sessions across project organizations in general given their widespread deployment.

Recommendation 6: What kind of knowledge is most useful to project managers and teams and in what situations? It was unclear from this study whether and in what ways project managers utilized the knowledge resulting from lessons learned sessions.

Many of the PMO leaders reported that they had lessons learned databases that provided project teams with a way to access this information. However, because this study did not investigate these processes at the project level, it would be useful to know 1) whether this information was used and 2) if it was not used what would have been more useful? If PMO Leaders are to continue to expend organizational resources on such systems, it is essential to understand what project managers and team members actually find to be most useful so that resources can be dedicated to those areas with the most promise for enhancing cross-project knowledge exchange.

Recommendation 7: To what extent are the standards and practices implemented by PMOs are built upon internal learning and experience? It was clear from this study that the primary means for PMO leaders to broker the transfer of learning was through the ongoing establishment of organizational routines that are common to multiple projects. What is unclear, however, is the extent to which these practices incorporate improvements based on the organization's own experience versus say, adopting external standards and "dropping them in." Although many of the participants professed that they improved their standards and methodologies based on the results of project interventions, lessons learned sessions, or process improvement efforts, further research is required to understand the extent to which these standards are truly "kept alive" with updates from recent project experiences. Such information may facilitate the development of ways to measure the extent to which an organization is really learning from its experiences, providing PMO leaders with a concrete way to measure their effectiveness in this area.

Recommendation 8: What are the factors that make one PMO more effective than another in their ability to facilitating learning? This study was not designed to compare the relative effectiveness of PMOs in their ability to facilitate learning. However, PMO practitioners may find it useful to understand the factors that make one PMO more effective than another in this area. Further research might explore, for example, the factors that enable certain PMO leaders to attain the social capital necessary to influence the learning process and how they utilize this legitimacy to effect learning at the organizational level.

Final Reflections on the study

This project has been an enormous learning process both in terms conducting effective research and in terms of realizing what can be achieved with focused effort and dedication over an extended period of time under conditions of uncertainty and ambiguity.

The researcher's prior academic experience was accumulated in the fields of engineering and business. In both of these settings, the research held the underlying assumption that there is a "right answer" to be found, and that a deterministic, linear process is the way to discovering that answer. Moreover, the problem to be solved was often clear at the outset. This project, unlike any the researcher has previously undertaken, not only required formulating a problem from a seemingly endless mass of literature and practice setting issues, but also required taking steps along the way that were not clear at the outset. This is because, as the researcher discovered, this kind of research is both iterative and creative, requiring the ability to take steps along the way while understanding that the end result is unclear and will eventually emerge through a

series of iterations. These iterations involved immersion into the participant's stories and finding ways to present the data in ways that help answer the research questions. As the researcher attempted to communicate the story, new understandings would emerge in collaboration with advisors and colleagues, often requiring re-immersion into the data and additional attempts to communicate the story. The result is a collaboration among many – study participants, advisors, colleagues and numerous researchers who contributed to the literature – that leads to enhanced understanding and more meaningful contributions.

What may be the most enduring learning for the researcher is that it is possible to undertake an independent project without a clear, deterministic path at the outset and, through small steps, eventually bring what was seemingly impossible at the outset to conclusion. Advisors and former students had labeled this "eating the elephant one bite at a time." Knowing this project would be monumental in this way, the researcher stepped back before undertaking it in earnest, taking time off to determine whether he was adequately committed. He returned with a strong desire to complete the project, having been partly inspired by his advisor and colleague Linda Bloomberg, who had recently completed her dissertation. It was through this strong commitment to finish, and a desire to overcome the anxiety that the ambiguity in this project provoked, that the researcher learned that much could be accomplished with focused effort and dedication one step at a time. This has proven to be an important life-lesson that will certainly be brought to other projects in the future. After all, even researchers can transfer lessons from one project to the next!

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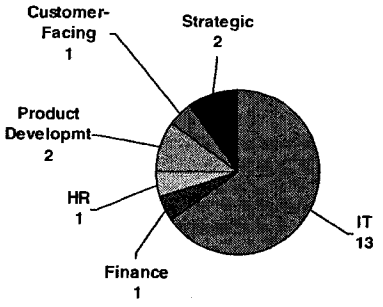
Appendix A: Sample Demographics

PMO Leader Participants n = 20

PMO Functional Domain



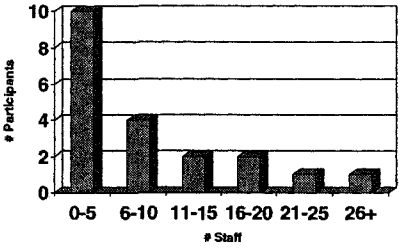
Organizational Reporting Level

	Number of Participants
"C" Level	6
Corporate	9
Business Unit	5

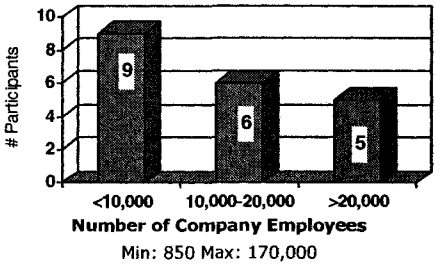
Number of Projects Supported
(Approx.)

Median	50
Average	305
Min	4
Max	2,500

Full-Time PMO Staff

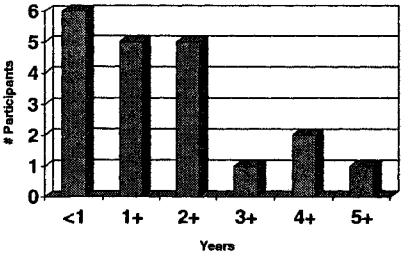


Company Size

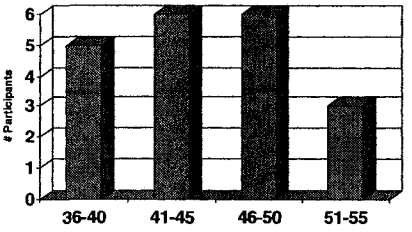


Min: 850 Max: 170,000

Years in PMO Leader Position



Participant Age Range



Men	9	45%
Women	11	55%

Appendix B: PMO Leader Letter of Invitation

To Leaders of PMOs:

Re: Doctoral study on Project Management Lessons Learned

I would like to invite you to participate in a doctoral research study being conducted through Teachers College, Columbia University. The purpose of the study is to understand how PMO leaders identify and share project lessons learned in order to continuously improve performance from one project to the next.

Your participation could enable you to contribute to a growing area of importance for PMO leaders: Learning from past project successes and failures and making this learning available to future project teams. You will be provided with a summary of the results and may have the opportunity to participate in a focus group with your peers to discuss the conclusions.

No names of either companies or persons will be shared or published. One of the reasons for the design of the study (having a number of participants from a cross-section of companies) is to ensure that no one person/company is identifiable within the results. Your involvement would require completing a pre-interview questionnaire and participating in an interview lasting approximately 60-90 minutes either in person or by phone. You may also have the opportunity to participate in a final focus group to discuss the study's results. I can provide additional details if you are interested in learning more.

In order to qualify for the study, you must: (1) have been working as the leader of your PMO for at least one year; (2) have full-time staff of at least five individuals; (3) have responsibility for continuously improving project performance from one project to the next; or (4) be the leader of a group for at least one year that meets the latter two criteria even if not named a "PMO."

If you are interested in participating, please respond by replying to this email and providing your name, phone number and email address so I can contact you to provide more details. My contact information is below. Thank you very much.

Sincerely,

Jerry Julian

Jerry@JLJulian.com

(917) 509-6051

Appendix C: Pre-interview Questionnaire

Thank you for agreeing to participate in the PMO Leader study. Please fill out the following information. If you have any questions, do not hesitate to contact me by email Jerry@JLJulian.com or phone (917) 509-6051.

Your Name: (will remain completely confidential)	
Your Title:	
Gender:	
Age:	
Years as PMO leader:	
Company Name: (will remain completely confidential)	
Title of supervisor:	
Approximate Number employees in your company:	
Number Full-time staff in PMO:	
Approximate number of projects supported:	
PMO Mission and Goals:	
Brief Description of your job role:	
Your work history:	***Please attach a copy of your resume (even if***

	outdated). This will be used to provide context on your background and experience prior to the interview.

Your time and participation are very much appreciated!

Appendix D: PMO Leader Consent Form

Teachers College, Columbia University

INFORMED CONSENT

DESCRIPTION OF THE RESEARCH: You are invited to participate in a research study on how Project or Program Management Office leaders attempt to identify and share "lessons learned" in order to improve future project performance. You will be asked to complete a pre-interview questionnaire and participate in an interview. You may also be asked to participate in a final focus group to review the results once the research is completed. The interview will be tape-recorded with your permission and the recording will be destroyed after the study is finalized. The final focus group will be video-taped, also with your permission. The research will be conducted by Jerry Julian, a doctoral candidate at Teachers College, Columbia University. The interview and focus group (if required) will take place at a mutually agreeable time and place, either in person or by phone.

RISKS AND BENEFITS: The harm or discomfort anticipated in the research is no greater than what would normally be encountered when you discuss your work with those outside your organization. You will not be required to reveal information such as specific project names, technologies, or proprietary information that would be inappropriate to share with external parties.

You will receive a final copy of the research once completed. It is anticipated that the results of this study will provide information about what your peers are doing to transfer learning from one project to the next. You may find this information to be useful in your ongoing efforts in this area.

PAYMENTS: You will receive no monetary benefits for participating in this study.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Strict provisions will be made to ensure your privacy and to preserve and maintain the confidentiality of all data collected. At no time will you or your company be referred to by name either in conversation or in writing. Pseudonyms for you and your company will be used throughout so that at no time whatsoever will any information be associated with you or your company. All data that is collected will be used for research purposes only. All pre-interview questionnaires, documents, interview transcripts, signed consent forms, and tapes will be securely stored in a locked file cabinet to which only the researcher will have access. Following the defense of the dissertation, the researcher will destroy all tape recordings.

TIME INVOLVEMENT: Your participation will require a minimum of 1½ - 2 hours to complete the pre-interview questionnaire and participate in the interview. If you are asked to participate in the final focus group, the time requirement will increase by 1 – 1½ hours.

HOW WILL RESULTS BE USED: The results of the study will be used to complete a doctoral dissertation at Teachers College, Columbia University. The research may also be published in journals or presented at conferences as appropriate (while maintaining the strict provisions of confidentiality as described above).

Teachers College, Columbia University

PARTICIPANT'S RIGHTS

Principal Investigator: Jerry Julian

Research Title: An Exploratory Study of Project Management Office Leaders and their Role in Facilitating Cross-Project Learning

- I have read and discussed the Research Description with the researcher. I have had the opportunity to ask questions about the purposes and procedures regarding this study.
- My participation in research is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator, who will answer my questions. The investigator's phone number is (917) 509-6051. I can also contact the investigator's advisor, Dr. Linda D. Bloomberg at 404-307-3999.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.
- I should receive a copy of the Research Description and this Participant's Rights document.
- If video and/or audio taping is part of this research, I ( ) consent to be audio/video taped. I ( ) do NOT consent to being video/audio taped. The written, video and/or audio taped materials will be viewed only by the principal investigator and members of the research team.
- Written, video and/or audio taped materials ( ) may be viewed in an educational setting outside the research ( ) may NOT be viewed in an educational setting outside the research.
- My signature means that I agree to participate in this study.

Participant's signature: _____ Date:____/____/____

Name: _____

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to _____ (participant's name) in age-appropriate language. He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: _____

Date: _____

Appendix E: Thank You Letter

Dear [participant name]:

Re: Thank you for your participation!

Thank you very much for participating in the research study on PMO leader perceptions and activities related to acquiring knowledge about the reasons for project success and failure.

Attached is the transcript of our interview conversation. Please read through the dialog to ensure that it reflects what you would like to convey.

I look forward to providing you with a summary of the research and will be happy to talk through the results with you once completed.

Once you have reviewed the attached transcript, please reply to this email (Jerry@JLJulian.com) and let me know whether or not you have any modifications. If you do, I will give you a call so we can discuss them.

Please accept my sincere thanks for contributing to this research.

Sincerely,

Jerry Julian

Appendix F: Project Manager Consent Form

Teachers College, Columbia University

INFORMED CONSENT

DESCRIPTION OF THE RESEARCH: You are invited to participate in a research study on how Project or Program Management Office leaders attempt to identify and share "lessons learned" in order to improve future project performance. You will be asked to participate in a 90-minute focus group. The focus group will be video-taped with your permission. The research will be conducted by Jerry Julian, a doctoral candidate at Teachers College, Columbia University. The focus group will take place at a mutually agreeable time and place.

RISKS AND BENEFITS: The harm or discomfort anticipated in the research is no greater than what would normally be encountered when you discuss your work with those outside your organization. You will not be required to reveal information such as specific project names, technologies, or proprietary information that would be inappropriate to share with external parties.

You will receive a final copy of the research once completed. It is anticipated that the results of this study will provide information about what Project or Program Management Offices are doing to transfer learning from one project to the next. You may find this information to be useful in your ongoing efforts in this area.

PAYMENTS: You will receive no monetary benefits for participating in this study.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Strict provisions will be made to ensure your privacy and to preserve and maintain the confidentiality of all data collected. At no time will you or your company be referred to by name either in conversation or in writing. Pseudonyms for you and your company will be used throughout so that at no time whatsoever will any information be associated with you or your company. All data that is collected will be used for research purposes only. All video tapes, transcripts signed consent forms will be securely stored in a locked file cabinet to which only the researcher will have access.

TIME INVOLVEMENT: Your participation will require approximately 90 minutes.

HOW WILL RESULTS BE USED: The results of the study will be used to complete a doctoral dissertation at Teachers College, Columbia University. The research may also be published in journals or presented at conferences as appropriate (while maintaining the strict provisions of confidentiality as described above).

Teachers College, Columbia University

PARTICIPANT'S RIGHTS

Principal Investigator: Jerry Julian

Research Title: An Exploratory Study of Project Management Office Leaders and their Role in Facilitating Cross-Project Learning

- I have read and discussed the Research Description with the researcher. I have had the opportunity to ask questions about the purposes and procedures regarding this study.
- My participation in research is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator, who will answer my questions. The investigator's phone number is (917) 509-6051. I can also contact the investigator's advisor, Dr. Linda D. Bloomberg at 404-307-3999.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.
- I should receive a copy of the Research Description and this Participant's Rights document.
- If video and/or audio taping is part of this research, I ( ) consent to be audio/video taped. I ( ) do NOT consent to being video/audio taped. The written, video and/or audio taped materials will be viewed only by the principal investigator and members of the research team.
- Written, video and/or audio taped materials ( ) may be viewed in an educational setting outside the research ( ) may NOT be viewed in an educational setting outside the research.
- My signature means that I agree to participate in this study.

Participant's signature: _____ Date:____/____/____

Name: _____

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to _____ (participant's name) in age-appropriate language. He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: _____

Date: _____

Appendix G: Interview Schedule

Opening

- Provide examples of cross-project learning activities so that participants gain an understanding of the information being sought.
- Explain that I will be asking for situations with which they may have been involved where they or their group attempted to understand and share project lessons learned

Research Question 1: What are PMO leaders' perceptions of their responsibilities related to capturing and sharing 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 help their organizations learn 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: Barriers and Enablers of Cross-project Learning

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?

Appendix H: Contact Summary Form

Visit:		Contact Name:	
Phone:		Contact Date:	
		Today's Date:	

1. Main issues or themes that were striking in this contact.

2. Summary of information acquired and not acquired.

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

    b. Research Question 2: How do PMO leaders acquire knowledge about the reasons for project success and failure?

    c. Research Question 3: How do PMO leaders transfer knowledge acquired about the reasons for project success and failure to other projects?

    d. Research question 3: What are the perceived barriers to acquiring and transferring the reasons for project success and failure across projects?

3. Salient, interesting, illuminating, or important issues that arose.

4. Questions/issues to consider for the next interview.

Appendix I: Initial Coding Scheme

(1.) What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another?

- (1.1) Included in Mission and Goals
- (1.2) Included in PMO Activities
- (1.3) Explicit Expectation from Boss
- (1.4) Initiated by PMO Leader

(2.) How do PMO leaders help their organizations learn from past project experiences?

- (2.1) Boundary Encounters
  - (2.1.1.) One on one
  - (2.1.2.) Immersion
  - (2.1.3.) Delegations
- (2.2) Brokering
  - (2.2.1.) Translation
  - (2.2.2.) Coordination
  - (2.2.3.) Alignment
- (2.3) Boundary Objects
  - (2.3.1.) Documents
  - (2.3.2.) Systems
  - (2.3.3.) Tools
  - (2.3.4.) Stories
- (2.4) Reflective Practices
  - (2.4.1.) Content
  - (2.4.2.) Process
  - (2.4.3.) Premise
- (2.5) Boundary Practices

(3.) How do PMO leaders attempt to share lessons learned from one project for the benefit of future projects?

- (3.1) Boundary Encounters
  - (3.1.1.) One on one
  - (3.1.2.) Immersion
  - (3.1.3.) Delegations
- (3.2) Brokering
  - (3.2.1.) Translation
  - (3.2.2.) Coordination
  - (3.2.3.) Alignment
- (3.3) Boundary Objects
  - (3.3.1.) Documents
  - (3.3.2.) Systems
  - (3.3.3.) Tools

(3.3.4.) Stories
(3.4) Reflective Practices
(3.4.1.) Content
(3.4.2.) Process
(3.4.3.) Premise
(3.5) Boundary Practices

(4.) Barriers to cross-project learning
(4.1) Each project is unique
(4.2) Time pressures
(4.3) Fear of airing mistakes publicly
(4.4) Reflection deferred until end of project

(5.) Enablers of cross-project learning
(5.1) Known acquaintances
(5.2) Social networking events
(5.3) Face-to-face knowledge sharing
(5.4) Mentoring
(5.5) Templates, checklists, manuals, guidelines

Appendix J: Final Coding Scheme

(1.) What are PMO leaders' perceptions of their responsibilities related to transferring lessons learned from one project to another?

- (1.1) Primary responsibilities
  - (1.1.1.) Effective Project Delivery
  - (1.1.2.) Consistent Project Management Practices
  - (1.1.3.) Learning & Growth Environment
  - (1.1.4.) Continuous Improvement [added to clarify analysis]
- (1.2) Lessons learned responsibilities
  - (1.2.1.) Explicit Expectation from Boss
  - (1.2.2.) Initiated by PMO Leader
  - (1.2.3.) Required to Maintain Certification
  - (1.2.4.) Continuous Improvement

(2.) How do PMO leaders facilitate learning from past project experiences for the benefit of current and future projects?

- (2.1) Boundary Encounters
  - (2.1.1.) Project Intervention
  - (2.1.2.) Process Improvement
  - (2.1.3.) Transfer of Standards to new teams
- (2.2) Brokering
  - (2.2.1.) Translation
  - (2.2.2.) Coordination
  - (2.2.3.) Alignment
- (2.3) Boundary Objects
  - (2.3.1.) Documents
  - (2.3.2.) Systems
  - (2.3.3.) Tools & Templates
  - (2.3.4.) Stories
- (2.4) Reflective Practices
  - (2.4.1.) Content
  - (2.4.2.) Process
- (2.5) Boundary Practices
  - (2.5.1.) Status Reporting & Governance
  - (2.5.2.) Lessons Learned Practices
  - (2.5.3.) Face-to-face Knowledge Sharing
  - (2.5.4.) Project Methodologies
- (2.6) Personal Experience as Project Manager
- (2.7) Formal Training
- (2.8) Personnel Selection

(3.) Barriers and enablers of cross-project learning

- (3.1) Barriers

(3.1.1.) Time pressures & anti-process sentiment
(3.1.2.) Fear of airing mistakes publicly
(3.1.3.) Reflection deferred until end of project
(3.1.4.) Lack of direct authority
(3.1.5.) People rotating in and out
(3.1.6.) Lack of senior management support
(3.1.7.) Lack of Motivation/Capacity to Learn
(3.1.8.) Difficulty accessing lessons learned

(3.2) Enablers

(3.2.1.) Good relationships and network
(3.2.2.) Learning-oriented Culture
(3.2.3.) Support from Senior Leadership
(3.2.4.) Professional Development
(3.2.5.) Neutral Facilitator for Lessons Learned
(3.2.6.) Reflection encouraged during project

Appendix K: Overview of Finding 1

	Pseudonym	Effective Project Delivery	PMO Leader Expects Lessons Learned at Project Closure	PMO Leader Responsible for Continuous Improvement	Consistent Project Mgt. Practices	Learning & Growth Environment	Required for Quality Certification
1	June	X	X	X	X		
2	Darla	X	X				X
3	Mitch	X	X		X		
4	Antonio				X		
5	Karen	X		X			
6	Rachel		X	X	X		
7	Seth	X		X	X	X	
8	Robert	X	X				
9	Sarah	X	X				
10	Patty	X	X	X		X	
11	Wendy	X	X	X			
12	Debra		X	X	X		
13	Melissa	X		X		X	
14	Greg	X		X			
15	Victor	X	X				
16	Cathy				X		
17	Mack		X		X	X	
18	Mort	X					
19	Suzie	X			X		
20	Harold	X	X				
	TOTAL	15	12	9	9	4	1
		75%	60%	45%	45%	20%	5%

Appendix L: Overview of Finding 2

	Pseudonym	Brokering	Boundary Practices	Boundary Objects	Boundary Encounters	Reflective Practices	Formal Training	Personal Experience as Proj Mgr	Personnel Selection
1	June	X	X	X	X	X			X
2	Darla	X	X	X	X	X		X	
3	Mitch	X	X	X	X	X	X		
4	Antonio	X	X	X		X			
5	Karen	X	X	X	X	X	X	X	
6	Rachel	X	X	X	X	X			
7	Seth	X	X	X	X	X	X		
8	Robert	X	X	X	X				
9	Sarah	X	X	X	X	X			X
10	Patty	X	X	X	X	X	X		
11	Wendy	X	X	X	X			X	X
12	Debra	X	X	X	X	X	X	X	
13	Melissa	X	X	X	X	X	X		
14	Greg	X	X	X	X	X	X		
15	Victor	X	X	X	X	X		X	
16	Cathy	X	X	X	X		X		
17	Mack	X	X	X	X	X	X		
18	Mort	X	X	X	X			X	
19	Suzie	X	X	X	X	X		X	
20	Harold	X	X	X				X	
	TOTAL	20	20	20	18	15	9	8	3
		100%	100%	100%	90%	75%	45%	40%	15%

Appendix M: Finding 2 – Brokering

	Pseudonym	Coordination	Alignment	Translation
1	June	X	X	X
2	Darla	X		X
3	Mitch	X	X	X
4	Antonio	X		X
5	Karen	X	X	
6	Rachel	X	X	X
7	Seth	X	X	
8	Robert	X		X
9	Sarah	X	X	X
10	Patty	X	X	X
11	Wendy	X	X	X
12	Debra	X	X	
13	Melissa	X	X	X
14	Greg	X	X	
15	Victor	X	X	X
16	Cathy	X	X	
17	Mack	X	X	
18	Mort		X	X
19	Suzie	X	X	X
20	Harold		X	X
	TOTAL	18	17	14
		90%	85%	70%

Appendix N: Finding 2 – Boundary Practices

	Pseudonym	Lessons Learned Practices	Status Reporting & Governance	Project Methodologies	Knowledge Sharing Forums
1	June	X	X	X	X
2	Darla	X	X	X	
3	Mitch	X	X	X	
4	Antonio	X	X		
5	Karen		X	X	
6	Rachel	X	X	X	X
7	Seth	X	X	X	
8	Robert	X	X	X	X
9	Sarah	X	X	X	
10	Patty	X		X	X
11	Wendy	X	X		X
12	Debra	X	X	X	X
13	Melissa	X	X		X
14	Greg	X		X	X
15	Victor	X	X	X	X
16	Cathy	X	X	X	
17	Mack	X		X	X
18	Mort		X		
19	Suzie		X	X	
20	Harold	X	X	X	
	TOTAL	17	17	16	10
		85%	85%	80%	50%

Appendix O: Finding 2 – Boundary Objects

	Pseudonym	Tools & Templates	Systems	Documents	Stories
1	June	X		X	
2	Darla	X	X	X	
3	Mitch			X	
4	Antonio	X		X	
5	Karen				
6	Rachel	X	X	X	
7	Seth	X	X		X
8	Robert	X	X		
9	Sarah	X	X		
10	Patty	X	X	X	X
11	Wendy	X			
12	Debra	X	X	X	
13	Melissa	X	X	X	
14	Greg	X	X		
15	Victor	X	X	X	
16	Cathy	X	X		
17	Mack			X	
18	Mort	X			
19	Suzie	X	X		
20	Harold	X	X		
	TOTAL	17	13	8	2
		85%	65%	40%	10%

Appendix P: Finding 2 – Boundary Encounters

	Pseudonym	Project Intervention	Transfer of Standards	Process Improvement
1	June	X		X
2	Darla			
3	Mitch	X		
4	Antonio			
5	Karen	X		X
6	Rachel	X		
7	Seth	X		
8	Robert			
9	Sarah	X		
10	Patty		X	X
11	Wendy	X		
12	Debra		X	X
13	Melissa	X		
14	Greg		X	X
15	Victor		X	
16	Cathy	X	X	
17	Mack		X	X
18	Mort	X		
19	Suzie	X		
20	Harold		X	
	TOTAL			
		11	7	6
		55%	35%	30%

Appendix Q: Finding 2 – Reflective Practices

	Pseudonym	Process Reflection	Content Reflection
1	June	X	X
2	Darla		X
3	Mitch	X	X
4	Antonio		X
5	Karen	X	X
6	Rachel		X
7	Seth	X	
8	Robert		
9	Sarah		X
10	Patty	X	
11	Wendy		
12	Debra	X	
13	Melissa	X	X
14	Greg	X	
15	Victor		X
16	Cathy		
17	Mack	X	
18	Mort		
19	Suzie		X
20	Harold		
	TOTAL	9	10
		45%	50%

Appendix R: Finding 3 – Enablers of Cross-Project Learning

		Network of Strong Relationships	Support from senior mgt	Learning-oriented culture	Neutral facilitator for lessons learned	Professional development	Reflection throughout project
1	June						
2	Darla						
3	Mitch			X		X	
4	Antonio	X	X				
5	Karen	X	X			X	
6	Rachel	X	X	X	X		
7	Seth	X	X	X	X		
8	Robert	X					
9	Sarah	X	X	X	X		
10	Patty	X	X	X	X	X	X
11	Wendy		X				
12	Debra	X					
13	Melissa		X			X	
14	Greg	X			X		
15	Victor		X				
16	Cathy	X					
17	Mack		X	X		X	X
18	Mort	X	X				
19	Suzie	X					
20	Harold		X				
	TOTAL	12	12	6	5	5	2
		60%	60%	30%	25%	25%	10%

Appendix S: Finding 3 – Barriers to Cross-Project Learning

		Lack of direct authority	Time pressures & anti-process sentiment	People rotating in and out of roles	Fear of airing mistakes publicly	Reflection deferred until end of project	Lack of senior management support	Difficulty accessing lessons learned
1	June	X		X				
2	Darla		X					
3	Mitch	X		X				
4	Antonio	X				X		
5	Karen			X	X			
6	Rachel		X	X	X			
7	Seth	X			X			
8	Robert	X	X				X	
9	Sarah		X	X	X			
10	Patty					X		
11	Wendy	X					X	
12	Debra	X	X	X	X			X
13	Melissa	X	X		X		X	
14	Greg	X	X					
15	Victor			X				X
16	Cathy			X	X		X	X
17	Mack	X				X		X
18	Mort	X	X			X		
19	Suzie		X					
20	Harold			X				
	TOTAL	11	9	9	7	4	4	4
		55%	45%	45%	35%	20%	20%	20%

Appendix T: Translation Analysis

Pseudonym	**Quotes Coded as Translation**	Context of Translation Brokering			
		Lessons Learned	Status Reporting	Project Intervention	Process Improvmnt
June	Then there were a couple of questions that I heard in meetings and some statements that were made. I connected the dots basically and said, "I've got a problem."			X	
Darla	I'll leave it open usually first, you know, what they thought went well; what things they thought could be improved. And then depending on what they came back with, I might ask them to break it down further.	X			
Mitch	So we structure them in terms of planning, in terms of activities, in terms of results, in terms of implementation. You know, what they'll do is say, "Okay, the communications, etc., This is what we did well. This is what we didn't do well," etc.	X			
Antonio	And I provide a very high level preread copy for the PMO Committee at least a week in advance of the meeting. So that they're not going in cold to those meetings.		X		
Rachel	We compile it before the meeting, so that it's not just a free-for-all but can be used to facilitate the meeting.	X			
Rachel	But we've asked for more granularity. Maybe the over project is amber, but where are you green? Where are you red? Where are you yellow? Is it around financials? Controls? Project planning? Resource management? You know, so forth, and so on.		X		
Robert	So people really had a tremendous misconception, or misunderstanding, about what was the perceived amount of yarn in their head and what the actual amount of yarn was in reality. So this little financial section on the Weekly Status Report converted their perceived yarn into actual yarn.		X		
Sarah	We have a datasheet in Excel that has, again, all the same milestones, and then it has a Summary page, which I then turned into a dashboard (again, I can provide you with examples), which then on top of that, the weekly process was that we would have a PMO meeting with all the Project Managers.		X		
Patty	We're actually in the process of doing it right now, where we scour through the previous year to identify trends, lessons learned, things that we both do really, really well, and things that perhaps we need improvement. (continued)	X			

		Context of Translation Brokering			
Pseudonym	**Quotes Coded as Translation**	Lessons Learned	Status Reporting	Project Intervention	Process Improvmnt
Wendy	After we started reporting and communication and visibility were key, because you and I know, and until people can see it and start tracking it, they really don't understand it. So that's kind of what my mission was.		X		
Sarah	The Project Manager had, in advance, paid due diligence and come up with a list of these critical items that the business owner was saying that she wasn't prepared to go live until they were fixed. So we did a very practical review of those with our Tech Lead trying to get our arms around how much work was it? That translated into a "go."			X	
Melissa	So I created a quick dashboard view of their project. It shows red-yellow-green, who's working on it		X		
Melissa	I gave him my feedback [on the lessons learned], that it was very biased. That it was not factual of what happened in the meeting.	X			
Victor	I'll review it and provide feedback to that Project Manager and then forward the presentation they sent me, along with my commentary, along to others in that role.	X			
Mort	So then it got to the stage where we were to create our separate, "Okay, here's our view." The official reporting says all green. Unofficially, "Here's what we think."		X		
Suzie	You know, first we reviewed what we wanted to accomplish with the project, what was the end goal? And then I had them give us a quick status on where we were. Then what we wanted to accomplish and then-- And we worked out a timeline.			X	
Harold	So I said, "These are the ones you have to do. Now here's the other 70-whatever ones." We called it POD (Process On Demand). It's a web-enabled template repository as well as some other features as well.				X
	Total	6	7	3	1
	Percent (%) of Participants	30	35	15	5

Appendix U: Coordination Analysis

Pseudonym	**Quotes Coded as Coordination**	Context of Coordination Brokering				
		Project Intervention	Knowledge Forum	Lessons Learned	Status Reporting	Process Improvmnt
June	I just told the Program Manager that I was sensing that something wasn't quite right and she was sensing something wasn't quite right too but she didn't know what. So I asked her to just bring me in to this one specific meeting with the people that I had a feeling were the disconnect, and just started probing.	X				
Darla	Well, the first wave I did it this way, where I just kind of went one-on-one. And then the second time I did it, I actually had them all on a call, in a meeting.			X		
Mitch	So again, the meeting tends to start with stuff that's already been gathered, and that's how you kind of tweak people into thinking of stuff.			X		
Antonio	But there are some requirements that we ask of them to come in to discuss, so that we have a focused meeting, and we're not all over the place.				X	
Karen	I had suspected, from talking to my friend, that the team morale was not good. So we had a chance to-- I suspected that we needed to break the team down in that way.	X				
Karen	Yeah, a process improvement workshop. We did that on that business process in mid-February. New processes, what came out of it, and I just pitched it to our executive last week and this week, and so we're just ramping up for implementation.					X
Rachel	"Wow, I *think* we need to take a breath here and maybe bring together some of the key players and the project team, the core team and just really talk about where are we going? What's going well, what's not."	X				
Rachel	You know, it's bringing the right people to the table so you have fact-based updates to work from.				X	
Rachel	I think it's also visibility and awareness, because a lot of these meetings engage a lot of people who just know the right things to do.		X			
Seth	And we did and said, "You're right, and this has all the earmarks of what we just looked at." Even though the Director position was not funded in anybody's budget, we said, "The right thing to do is to put the fix in before we encounter the problem." So we put the person in there.	X				
Seth	The PMO function is responsible for setting the requirements of the status report. Kind of the Project Controlling documents. So that's done centrally and dispersed out to the organization for execution. (continued)				X	

		Context of Coordination Brokering				
Pseudonym	**Quotes Coded as Coordination**	Project Intervention	Knowledge Forum	Lessons Learned	Status Reporting	Process Improvmnt
Robert	Well, essentially whether you're running a centralized or decentralized PMO, as long as you keep the Project Managers connected through their professional discipline on a regular basis, you have discussions that encourage that kind of commentary.		X			
Sarah	There's a standard Lessons Learned document, which we did in that meeting. You know, very practical. And I was the Coordinator so I was the meeting runner.			X		
Sarah	And one of the major jobs that I have to do every week is, as Dave calls it, "It's herding cats." You know, I have insure that they come into the room. It's as simple as that.				X	
Patty	Then what we will do is we will outreach to a select number of Project Managers, who were responsible for those projects, work with them to develop presentations for their peers and then we will hold a formal lessons learned workshop with this audience.			X		
Patty	Well, typically what we do is we employ what's called a Project Manager Project Lead Forum, where all Project Managers and Project Leads in the organization meet monthly.		X			
Wendy	I would ask the PMs what topic they wanted to hear about? Then I would have someone come in and then they would discuss it amongst themselves.		X			
Debra	So I led a team that focused on the Demand Management. How is the Demand coming into the organization? And we had everybody from all the verticals (including people from the business) and that's where we discovered that we basically had three major kinds of demand.					X
Melissa	So I attended their meetings. In fact, he had me start running their team meetings, to figure out what they were doing.	X				
Melissa	So the status reports, we knew that they had to be cleaned up, standardized and shortened, because they were sending them out to too many people. So we also had to change the whole distribution list on who they sent them to. We fixed all that, based on feedback from the stakeholders.				X	
Melissa	We also plan a monthly "Hot Topic" subject, where it will be a live meeting type thing, where people can dial. (continued)		X			

		Context of Coordination Brokering				
Pseudonym	**Quotes Coded as Coordination**	Project Intervention	Knowledge Forum	Lessons Learned	Status Reporting	Process Improvmnt
Greg	I proposed, and it was very well received, that we have a workshop, where we bring ourselves together and we talk about, "How can we leverage ourselves to be more successful? How can we maximize the effectiveness of the partnership?" And that was all about looking at where the partnerships are working really well, what can we learn from that and transmit it to the rest of the organization.					X
Victor	We prepare a slide deck, usually about 10 slides, that includes kind of everything that happened on the *Sprint...*There's a slide for what worked well; what did not work well.			X		
Cathy	So we had those individuals meet with this particular segment of our organization and just talk about them.	X				
Mack	So in these sessions, each PM is supposed to present their project, and the high level risk and things like that, in front of the COE, which means all the members. We basically brainstorm on all questions or even discuss ideas on how we can plan this project better.		X			
Suzie	We quickly developed a program and a set of goals and a timeline and right up front, we run it as a program where I had a-- I got with each Director, and I said, "This is what we want to do.	X				
	Total	7	6	5	5	3
	Percent (%) of Participants	35	30	25	25	15

Appendix V: Alignment Analysis

Pseudonym	**Quotes Coded as Alignment**	Project Intervention	Transfer of Standards
June	So what we did was we pulled the Operating Committee, in fact, we pulled three Operating Committee Members together with their direct reports that were involved in this, and sort of went back a couple steps and then went through the assumption process.	X	
June	We have facilitated sessions with them to make those lines clearer, and then modified RACI models around process to insure that we are able to operate more smoothly with the right decision makers.		X
Mitch	What we did was we documented it and are now working with our vendor to make sure that when we are working with something that involves both parts of that company, that they're communicating adequately.	X	X
Karen	And in both cases, we spent time up front talking about expectations and how we expect them to conform to our standards for project management.		X
Rachel	And bring those issues out and then as we saw those, try to refine them and then most important, "So what are we going to do about it?" What do we need to do to mitigate what we're saying, either keep up the good work or change the work that's needing some help. And then we pulled it together in a way.	X	
Seth	And we had meetings amongst the executive team for each of the operating companies, to make sure everybody was onboard. After all the CEOs nodded their heads, you've got to make sure everybody else that's got to execute it, after they nod their head, is onboard.	X	
Sarah	So we did a very practical review of those with our Tech Lead trying to get our arms around how much work was it? That translated into a "go."	X	
Patty	We may find that when you look across the board, or on a particular steering committee, we may find that their decision-making model wasn't as efficient as it could have been, and that information ends up going back up to that particular steering committee; those are some of the messages and recommendations on how we change things that may go up to the executive group.		X
Wendy	In August, I went to the CFO, the CIO and the Senior VP and I said, "Okay, guys. I've tried everything I can possibly do." I said, "The only thing that I can do now is to bring in a recovery guy from the outside that's going to cost you guys a lot of F'ing, you know, money. (continued)	X	

Pseudonym	**Quotes Coded as Alignment**	Project Intervention	Transfer of Standards
Debra	By the end-- Actually, I want into that meeting with my Application Development partner and she was really helpful, where she explained-- And she was on that team that helped develop that process. So she had a lot of skin in the game. So that helped. That helped tremendously. And by the end of that, he actually bought into it.		X
Melissa	They kind of had overlapping roles, which caused a lot of conflict. So one of the first things we did in the combined meeting, was do a Roles and Responsibilities Chart to figure out who does what, and that helped to clarify, because they were stepping on each other's toes constantly.	X	
Greg	It really wasn't much of a process, in that, as a small group, as we were at that time, and I think a very close-knit group, which we still are. It was pretty easy to say, "These are my expectations." I'm very big on being very clear about expectations.		X
Victor	So I basically, in this case, kind of did a top-down approach, in terms of getting the buy-in from the management staff before rolling it out to kind of the team lead level staff.		X
Cathy	If they're running them, they handle [the implementation of the standards]. If they're not running them, we would help other Project Managers to look at a list like this and to get them squared away, connected with the right individuals to help them with this.		X
Mack	We also are having one-on-one discussions with people who are not participating [in the required knowledge sharing forums].		X
Mort	I've done this many times. I can't stress that's how important it is to do this. I kind of created the templates for them. I had a meeting with each of the CFO's in a room. "We need to pursue completing this exercise."	X	
Suzie	We quickly developed a program and a set of goals and a timeline and right up front, we ran it as a program where I had a-- I got with each Director, and I said, "This is what we want to do. This is what our CIO wants to do. I need a representative from each of your areas to come together, run their portion of the project and come together in this overall program."	X	
Harold	So what I did is I created a baseline, is, "You need to do these six very well and before you can go through the next phase, you at least have to have this done."		X
	Total	9	10
	Percent (%) of Participants	45	50

Appendix W: Content Reflection Analysis

Pseudonym	**Quotes Coded as Content Reflection**	Context of Content Reflection Brokering: Project Intervention	Lessons Learned	Status Reporting
June	I think, the Program Manager that kicked off the project and I sat down and went through, "Okay, this is what we're hearing. This is what it looks like. What is causing this?"	X		
Darla	One was sort of just informally asking people one-on-one who were involved with the project...kind of standard stuff like, you know, what went well. What didn't go so well, kind of on a broad sense, and then it gets a little more specific.		X	
Mitch	You know, essentially it was typical of, "Do well/do betters." There were things like, "Gee, get security involved earlier." Just what I said...It turned out that some of it was communication. So I said, "Why was it communication? Why did it fall through?"	X		
Antonio	And typically it's about what's the issue? What are the complications? What's their proposal or recommendation? That essentially helps with the discussion.			X
Karen	Well, we talked about-- In all three meetings, we talked about what's going well with the project; what they feel needs improvement with the project; what could we do better.	X		
Rachel	I'm forgetting who led the session, but it was just bringing together the core team and doing a "three-plus, three-minus" and getting issues out on the table and facilitating a discussion that allowed it to become more factual about what the issues were and what the needs were.	X		
Rachel	Actually one point I want to make is over the year, we've also refined what they're reporting out on so that it's not just a red-amber-green rating on the overall project. But we've asked for more granularity. Maybe the over project is amber, but where are you green? Where are you red? Where are you yellow?			X
Sarah	So in a very impassionate-- No, what's the right word? Impartial way, we literally went through the questions, and they were standard questions: "What were the successes? What could have been done better?"		X	
Melissa	They would go through and say, "Okay, you each get three Post-Its and go put them up in the right area, 'What are the top things that went wrong?'" And then they would do another one, "What are the top things that went well?"	X		

(continued)

		Context of Content Reflection Brokering		
Pseudonym	**Quotes Coded as Content Reflection**	Project Intervention	Lessons Learned	Status Reporting
Victor	We get people of different levels or departments in a room and suggest, you know, "What are you worried about right now? What are your fears? What are your uncertainties? What are your doubts about this project, about his program, [whatever it may be]?"	X		
Suzie	What I did before the meeting, just to make sure I really understood everything, is I went around to each person that had been involved and I asked them about the project; where it was; what were the challenges; what might be the hurdles to success; what difficulties they were having.	X		
	Total	7	2	2
	Percent (%) of Participants	35	10	10

Appendix X: Process Reflection Analysis

Pseudonym	**Quotes Coded as Process Reflection**	Context of Process Reflection Brokering: Process Improvmnt	Context of Process Reflection Brokering: Project Intervention
June	We had done our fourth set of post-mortems on releases. Right? 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., etc.?" And what we realized was three quarters in a row, we were have role and responsibility issues and decision right issues, and one of the root causes was organizational change.	X	
Mitch	The goal of the meeting is to literally, to find out, one, "What did we do well?" And make sure we: (1) makes sure we do that again; and (2) what didn't go well? So what should we be improving on our methodology?		X
Karen	Yeah, a process improvement workshop. We did that on that business process in mid-February. New processes, what came out of it, and I just pitched it to our executive last week and this week, and so we're just ramping up for implementation.	X	
Seth	We did a fairly extensive review of both and said, "Why: (a) did we lose all this money?; (b) what should we have done differently during the sales process?; and (c) assuming that all the sales folks and the customer agreed to something, how can we execute on these differently? Who's got control over it, etc.?" So we went through that evaluation.		X
Patty	And we did an actual lessons learned, if you will, of the process that we had initially had designed and developed, which includes a three-phase process on how we nominate, prioritize and select portfolio items. And then we'll go through an end-to-end evaluation to identify opportunities, to streamline, be more efficient and articulate better results.	X	
Debra	I think just because of the number of people that were doing the same things over and over. And saying, "Why are we starting from scratch again with this? Why don't we say there are certain specific things you need for this particular environment."	X	
Melissa	I made the agenda, "Well, let's figure out-- What's going on here? What are the hot topics? What are your standards? How are we going to get to standards? Are you using the same things? Why are you changing them?"		X
Greg	I proposed, and it was very well received, that we have a workshop, where we bring ourselves together and we talk about, "How can we leverage ourselves to be more successful? How can we maximize the effectiveness of the partnership?"	X	

		Context of Process Reflection Brokering	
Pseudonym	**Quotes Coded as Process Reflection**	Process Improvmnt	Project Intervention
Mack	Again, what we do is every quarter, we solicit feedback from each COE member to understand what the policy is, how they feel about these sessions; how we can improve and things like that.	X	
	Total	6	3
	Percent (%) of Participants	30	15