The Local and Variegated Nature of Learning in Organizations: A Group-Level Perspective

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Abstract

This paper considers the role of team learning in organizational learning. I propose that a group-level perspective provides new insight into how organizational learning is impeded, hindering effective change in response to external pressures. In contrast to previous theoretical perspectives, I suggest that organizational learning is local, interpersonal, and variegated. I present data from an exploratory study of learning processes in 12 organizational teams engaged in activities ranging from strategic planning to hands-on manufacturing of products. These qualitative data are used to investigate two components of the collective learning process—reflection to gain insight and action to produce change—and to explore how teams allow an organization to engage in both radical and incremental learning, as needed in a changing and competitive environment. I find that team members' perceptions of power and interpersonal risk affect the quality of team reflection, which has implications for their team's and their organization's ability to change.

(*Organizational Learning*; *Team Learning*; *Psychological Safety*; *Meso-Level Research*)

Introduction

The notion of organizational learning has been explored in the management literature for several decades (e.g., March and Simon 1958, Argyris and Schön 1978, de Geus 1988, Hayes et al. 1988, Levitt and March 1988, Stata 1989, Senge 1990, Huber 1991, Schein 1993, Garvin 2000). This interest stems from the premise that success in changing environments requires learning—recognizing a need for change, evaluating new possibilities, and implementing new courses of action. Organizational learning is an encompassing rubric under which researchers have studied, in remarkably varied ways, this fundamental need to adapt and change. Understanding the processes by which organizations learn and how these processes might be better managed is of central importance to management scholars and practitioners alike. This paper takes a group-level perspective to shed light on interpersonal processes that influence organizational learning outcomes.

Organizational learning is defined here as a process of improving organizational actions through better knowledge and understanding (Fiol and Lyles 1985, Garvin 2000). Although the literature includes numerous definitions of organizational learning (e.g., see Edmondson and Moingeon 1998), not all of them encompass change in behavior or action.[1] Learning, more generally, is viewed as an iterative process of action and reflection, in which action is taken, assessed by the actor, and modified to produce desired outcomes (Kolb 1984, Schön 1983, Dewey 1938). Consistent with this general framework, I concur with Garvin (2000) that a useful conception of organizational learning must include change, such that an organization can be said to learn when its actions have been modified as a result of reflection on new knowledge or insight.[2] This definition leaves much about the adaptive learning process in an organization unspecified, such as how new insights are developed and applied, who carries out what learning objectives, and whether different parts of an organization must learn different things for effective learning by the whole organization.

In this paper, I start with the premise that an organization "learns" through actions and interactions that take place between people who are typically situated within smaller groups or teams. Through these subunits making appropriate changes in how they do their work—driven by both team-specific and organizational objectives—an organization maintains its effectiveness in a changing world. Although there is an emergent literature on team learning, we know little about how organizations change, or fail to change, through adaptive processes carried out by teams. To better understand this process, I conducted an intensive study of learning in five different types of

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teams—top management, middle management, product development, internal services, and production—in a medium-sized manufacturing company.

In the next section, I summarize previous individual- and organizational-level explanations of why organizations fail to adapt effectively, and propose a third, group-level explanation. I then elaborate on a theoretical argument that conceptualizes organizational learning as an aggregation of local action and reflection cycles in teams. This group-level perspective calls attention to the roles of group process and perceptions of interpersonal risk in hindering organizational learning.

Levels of Analysis in the Organizational Learning Literature

The organizational learning literature includes both organizational-level and individual-level theories to explain change and resistance to change in complex organizations (Miner and Mezias 1996, Edmondson and Moingeon 1998). These levels of analysis have emphasized different phenomena, giving rise to complementary but disconnected pictures of organizational learning. Organizational-level theories focus on the stabilizing effects of routines, a tendency to execute a limited search, and a preference for current competencies—all shortcomings of the unsystematic trial and error process through which organizations adapt over time (Levitt and March 1988). For example, theorists have argued that organizations favor learning that exploits current capabilities ("exploitation") rather than learning that develops necessary new capabilities through "exploration" (March 1991), and that organizations cling to outmoded identities that thwart adaptive action (Brown and Starkey 2000). Although human cognition is implicated in these adaptation failures, interpersonal mechanisms through which cognitive limitations lead to organizational outcomes are not directly investigated. In contrast, individual-level theories point to the behavior of individuals in organizational contexts as limiting effective organizational change. For example, Argyris and Schön (1978) showed that people hold tacit theories ("theories-in-use") that disable their own and others' learning and tend to favor "single-loop learning" (detecting and correcting error) over "double-loop learning" (analyzing and altering underlying causes of error, such as norms and policies). Individuals' learning gaps are assumed to hinder effective organizational adaptation, without specifying intervening processes through which this occurs. These two perspectives on organizational learning—macro and micro—provide a foundation for a third perspective that investigates learning phenomena at the group level of analysis. A group-level or "meso" approach is inherently integrative, incorporating factors from two or more levels simultaneously (Rousseau and House 1994).

Toward a "Meso" Approach to Organizational Learning

A decade ago, Senge (1990) suggested that teams are the fundamental learning unit in an organization. An increasing amount of work in organizations is carried out by teams (Osterman 1994) and the context for organizational learning—for evaluating the current state and making changes—is often a team. Teams, or work groups,[3] are also important in that individual cognition and behavior—through which organizational learning necessarily occurs—is shaped by social influences, that is, by the attitudes and behaviors of others with whom they closely work (Salancik and Pfeffer 1978, Hackman 1992). The localness of social influence gives rise to subcultures in organizations (Trice and Beyer 1993), and propensity to learn varies across organizational cultures (Schein 1985). Organizational learning is thus likely to be a variegated phenomenon, with potentially dramatic differences in learning approach or learning effectiveness across organizational subunits. For example, Edmondson (1996) found that group-level differences in norms for reporting medication errors in hospitals had the potential to limit organizational learning about how to prevent similar errors in the future. There is little empirical research in the organizational learning literature investigating this variation or exploring how an organization's teams affect its overall learning goals. Thus, the implications of Senge's (1990) proposition that teams are the unit of organizational learning have remained largely undeveloped, with limited empirical research on team learning in real organizations and a lack of theoretical work on how different kinds of teams and team processes affect organizational adaptation.

Existing Research on Team Learning. Team learning has been defined as a process in which a team takes action, obtains and reflects upon feedback, and makes changes to adapt or improve (Edmondson 1999, Argote et al. 2000). This is consistent with the dominant conception of individual learning as cited above.

Recent research in the laboratory and field has established a foundation for understanding organizational learning at this level of analysis, but has made limited connections to organizational outcomes. Laboratory studies of group learning found that stable membership promotes learning and tacit coordination (e.g., Moreland et al. 1998) and showed that teams of management students

participating in a computer simulation and acting as top management teams respond to performance feedback by adjusting aspiration levels, much the way individuals do (Lant 1992). In field research, Brown and Duguid (1991) found that organizational work practices are modified in small networks called "communities of practice," by sharing stories and insights in the context of doing work. Although communities of practice are loosely tied networks of common interest rather than formal work groups, this research showed that learning occurs in small collectives within organizations. A small number of detailed case studies highlight the remarkable potential for tacit coordination and adaptive learning in teams (Hutchins 1991, Weick and Roberts 1993). Other field research finds that learning in teams is driven by interpersonal perceptions and concerns, and that a lack of psychological safety can inhibit experimenting, admitting mistakes, or questioning current team practices (Edmondson 1999).

Even when teams learn effectively, team learning may not translate to organizational learning. Groups often fail to communicate with others in the organization (Ancona and Caldwell 1992), or else they communicate but are unable to convince others in the organization to adopt new ways of working (Roth and Kleiner 2000). Similarly, early research on organizational change found that instituting new work practices in one part of an organization gave rise to "star envy." This is a phenomenon in which other organizational groups' envy of the success and attention earned by those selected for the change effort leads to the others rejection of the changes, stifling progress (Walton 1975). In this way, learning in organizations often remains local—driven by goals and concerns of individuals and groups rather than serving organizational goals.

Linking Team Learning to Organizational Learning

In this paper, I propose that organizations can fail to carry out essential adaptation due to incomplete reflection and action in teams situated at multiple levels in the organization's hierarchy. As defined above, team learning breaks down when teams fail to reflect on their own actions, or when teams reflect but fail to make changes following reflection. In case of either failure, a team is unlikely to contribute new knowledge or new ways of working that could help its organization succeed in an ambiguous or changing environment.

Why might these failures occur? First, reflection at the group level is a discussion process, and if teams are busy or accustomed to routine (Gersick and Hackman 1990), such reflective discussion may simply not occur. Second, considerable research shows that group discussion that does occur is often ineffective—vulnerable to process failures such as ignoring relevant information not already shared by group members (Stasser 1999) or inappropriate deference to authorities (Janis 1982). These process failures are likely to be exacerbated by a lack of psychological safety, where group members believe that they are at risk if they speak openly (Edmondson 1999). Interpersonal concerns are particularly salient when members engage in evaluative discussion about their team's activities, including evaluation of individual or collective performance. Negative evaluation or criticism that is needed to trigger learning, is inherently psychologically threatening (Argyris and Schön 1978), and so it may be difficult for teams to have high-quality reflective discussion about their shortcomings without considerable psychological safety. Third, teams may reflect (well or badly) but fail to implement changes in team activities due to such constraints as inability to break out of routines, lack necessary resources or motivation.

In conceptualizing the relationship between team and organizational learning, I also suggest that different teams may serve different learning goals for the organization. Specifically, researchers have long drawn a distinction between two types of learning—exploitation and exploration (March 1991), first- and second-order learning (Lant and Mezias 1992), single- and double-loop learning (Argyris 1982), and Learning I and Learning II (Bateson 1972). The former is characterized by improving existing routines or capabilities and the latter by reframing a situation, developing new capabilities, or solving ambiguous problems. Recent work maintains that no theory of organizational learning is complete without this distinction (Crossan et al. 1999). Following Miner and Mezias (1996), I use the terms *incremental* and *radical* learning to capture this distinction and to develop a model in which organizational learning consists of learning processes within multiple teams, some of which help an organization explore and develop new capabilities while others help to execute and improve existing capabilities. Serving these two goals simultaneously is another way in which organizational learning may be variegated. Finally, I speculate that teams pursuing either learning goal may face challenges to carrying out effective reflection and action.

In summary, the present study uses a group-level lens to explore variation in learning within an organization. I conceptualized team learning as an iterative action-reflection process that serves either an incremental or radical learning goal for the organization. As described above, this conceptualization implies that organizational

learning is likely to be *local* (focused on specific organizational tasks), *interpersonal* (influenced by individuals' perceptions of the social climate), and *variegated* (nonuniform in both learning and learning goals). The broad questions guiding my investigation were as follows: How does learning occur in organizational work teams? What factors are associated with different patterns of action and reflection in different teams? How is the distinction between radical and incremental learning manifested in a set of organizational teams? In the next section, I describe my research method, followed by a section that presents and discusses qualitative data from a subset of the teams. Finally, I integrate these empirical analyses with the theoretical argument presented above to refine my model of how organizational learning is enabled and hindered by team processes.

Method

Qualitative research is a useful methodology for investigating phenomena that are not well understood. To explore the role of teams in organizational learning, I used observation and interviews to study 12 teams of varied types in a manufacturing company. Selection of the research site originated with a request from the company for help assessing team effectiveness. I agreed to provide feedback to a number of teams in exchange for the ability to use the disguised data. My role in the company was that of an academic researcher, not a consultant.

The Study

My contact at the company was an internal consultant who selected teams for a study based on my request for representation from multiple levels and functions. This produced a convenience sample that satisfied this request with teams that were available for interviews and observation during my seven field visits. These teams were engaged in several key adaptive processes—including new strategy formulation, new product development, technology implementation, and quality improvement—through which their company could learn. I conducted 36 interviews with team members who were senior executives, middle managers, engineers, production workers, and providers of various staff services. I also observed 15 team meetings, for a total of more than 90 hours of field observation and interviews.

The Site. The company was a leading manufacturer of capital goods for offices, with a history of product and management innovation. Most managers had been with the company for many years and were accustomed to market and financial success. Recently, the industry underwent significant changes that could threaten the company's market leadership. Corporate customers were increasingly price sensitive, less willing to pay a premium for the high-end image of the company's product lines, and expecting more from consultative services. A new CEO was recently hired from the outside to facilitate a turnaround. As a member of a consortium led by Peter Senge,[4] the company was engaged in an effort to become "a learning organization"—defined by Senge (1990) as an organization "that is continually expanding its capacity to create its future." With management's combined interest in organizational learning and team effectiveness and the company's need to adapt and change in the face of a changing and competitive environment, this was a good field site to carry out research on team and organizational learning.

Procedure. In the first phase of the research, I studied the strategy team, consisting of the CEO, five senior vice presidents, and two subsidiary presidents because it worked to develop a new business strategy. I invested considerable time studying this top management team compared with the other 11 teams in the sample because of the opportunity for extensive and longitudinal data through which both reflection and change might be observed. Over a six-month period, I observed and tape recorded five full-day meetings and conducted individual interviews with six of the eight team members. This allowed observation of the team-learning process over time.

In the next phase of the research, I studied 11 other teams over a five-month period. Table 1 describes the sample, which consisted of five types of teams—top management, middle management, new product development, internal services, and production. In this phase, I conducted 30 interviews with team members and team customers or observers, and observed meetings of eight of the teams, each of which lasted from one to three hours. Interview questions asked team members to describe features of their team such as the goal, the nature of the team's task, how the team organized its work, and what challenges it faced. These general questions allowed me to listen for examples and types of learning behavior without directing team members to talk about learning and produced many concrete descriptions of behaviors and events rather than opinions about whether a team was learning.

Data Analysis

Analysis of the qualitative data followed an iterative approach, comparing the above constructs and themes in the

Table 1 The Sample

Team	Team Type	Task	Composition
The strategy team	Top management team (TMT)	Strategy development	CEO, five functional senior vice presidents, two subsidiary presidents, and five functional vice presidents
Facilities	Middle management team (MMT)	Facilities management: manage a network of physical plants both at corporate headquarters and a number of dealers	Director of facilities management and six direct reports
Transportation	MMT	Transportation management: manage shipping and distribution of products to dealers and large customers	Director of transportation management and four direct reports
"Radar"	Product development team (PDT)	New product development: develop a product envisioned by senior management to augment an existing product line	Team leader (peer) and six core members from different functions
"Maverick"	PDT	New product development: develop a new product line for more flexible offices	Team leader (peer) and six core members from different functions
"Beanstalk"	PDT	New product development: develop a new line of products designed to extend and enhance an existing product line	Team leader (peer) and six core members from different functions
Dealer accounting	Internal services team (IST)	Prepare custom publications for specific dealers	Manager and five direct reports
Computer support	IST	Provide computer help and support	Manager and four direct reports
Computer integration	IST	Develop a new, consistent computer interface for all company computer users	Team leader (peer) and four members from different functions and two computer specialists
Storage	Production team (PT)	Manufacturing filing systems	Supervisor and 25 production workers
Stain	PT	Manufacturing; finish surfaces of a variety of products	Team leader (peer) and five members
Tech	PT	Provide technical support to a number of production teams	Team leader (peer) and seven members

organizational- and team-learning literatures to themes that emerged from the data (Glaser and Strauss 1967, Eisenhardt 1989). I reviewed tapes and notes to identify data suggestive of team learning (such as obtaining feedback, questioning some aspect of team process or performance, or suggesting or implementing changes). Because of its salience for facilitating potentially threatening evaluative discussion in a team, I also coded data pertinent to psychological safety. With different amounts of data for each team, it was not appropriate to count and compare instances of learning but instead to examine types of learning behavior. I also recorded data pertinent to the implicit or explicit learning goal of each team.

The next round of analyses categorized data previously coded as related to team learning into *reflection* (behaviors that fostered new insights about team process or performance, without action) and *action* (behaviors that involved taking action to test or implement new ideas), consistent with the conception of team learning as an action-reflection process. To verify this categorization, two research assistants coded qualitative data previously identified as indicative of the presence or absence of team learning into two categories: behaviors that promoted shared insight and behaviors that applied new insights or produced change. Their two sets of results replicated 90 and 93% of my own categorizations.[5] Third, I examined the relationship between each team's task and radical or incremental learning. Independent of enacted team-learning behavior, the task of each team positioned it to serve a particular organizational learning goal. Together, these analyses suggest a model for conceptualizing how team learning effects organizational learning outcomes.

Patterns of Team Learning

This section compares observations of the learning process across multiple teams to identify different patterns of team learning. The next section explores factors that may explain these differences.

The Relationship Between Reflection and Action

To explore the process of team learning and the interplay between reflection and action, I first distinguished between team behaviors that promoted new insight and those that applied (or took action based on) new insight. In the former category were behaviors such as sharing information, seeking feedback, discussing errors, and analyzing past performance. In the latter were decisions, changes, improvement, implementation of new ideas, and transferring new information to others in the organization. This is in contrast with previous work in which learning in a team was presented as either high or low, and evidence of team self-reflection was considered evidence of learning behavior (Edmondson 1999).

By categorizing team learning into two processes, recurring patterns emerged. First, six teams appeared to iterate—in some cases frequently—between behaviors that promoted shared understanding and those that involved actually trying something new. Trying something new could be implementing a design or plan as a result of discussion, or engaging in a test or trial as a means of obtaining feedback on an action understood not to be perfect. Second, two teams engaged in activities that appeared consistent with self-evaluation or reflection, yet they did not take the next step of achieving closure on a decision, making a change, or trying something new. Third, four teams appeared to do little that promoted either shared insight or change.

Table 2 illustrates the distinction between the two process categories of learning behavior, and sorts data into three patterns. The first row presents teams in the first pattern that showed evidence of both reflection and change. Teams in the second row illustrate reflection without change or new action. Teams in the bottom row showed little evidence of learning behavior in either category. I describe these patterns, starting with teams that seemed not to learn as a team at all, then those that showed partial but incomplete team learning, followed by examples of teams that both reflected and tried new actions as a result.

Teams that Neither Reflect nor Change

Four teams fell in this category: a middle management team (MMT), two internal services teams (ISTs), and a production team (PT). The PT assembled storage and filing systems in one of the company's plants.[6] Unlike other teams making the same product in the second shift, people on this team (the day shift), "sit and wait if a problem comes up," according to an internal consultant, Mark, who coached teams in several plants. He continued, "If there is a technical problem, they don't ask the engineers. They don't want to look like 'brown nosers'." Later, he provided a specific instance, "They were having problems with the glue but they didn't get help. They just sit and don't work, and then they get to do overtime on Saturday." Mark's comments convey a belief that, not only did the team fail to try to understand and fix problems, its members valued problems as sources of lucrative overtime pay. In this way, team members pursued an enacted goal at odds with the team's formal organizational goal. The team's work thus remained divided according to specialized subtasks, a situation that members resisted changing, eschewing crosstraining occurring elsewhere in the plant, according to both Mark and team members interviewed. Interestingly, some individuals in the team did learn, in that they learned to leave the team. Two team members, unhappy in this situation, applied for transfers to another team. As Mark reported, "Sally and Sue both had been getting a hard time on the first shift for outperforming." Both moved to the second shift where they found that they were able to be themselves and to engage in an explicit team improvement process.

A second team, shown in Table 2's bottom row, is an IST responsible for producing accounting reports for company dealers. While other company teams assigned the same task used a collaborative approach, in this team the leader assigned tasks rather than allowing the team to develop a shared work process. Team members reported that information transfer occurred between team members and dealers but rarely among team members, despite the fact that the team was colocated. Thus, team members did not reflect together, nor did they feel that they learned as individuals, claiming a lack of "honest feedback," "not feeling heard," and having "no opportunity to grow." One member complained, "People are leaving, but none of the problems get addressed." Two teams showing a similar pattern were an IST responsible for computer support and a MMT responsible for corporate facilities.

Reflection Without Change

Two teams were categorized as exhibiting reflective discussion without evidence of subsequent change or action. One was the strategy team that I observed over several months.

Strategy Team. Transcript data reveal extended team conversation about the performance and image of the company, including reflection on the team's own process. In a series of meetings over six months; however, the

Table 2 Team Learning Behavior Classified into Categories of Reflection and Action

		Reflection: Developing Collective Insight (*or not*)	Action: Producing Change or Improvement (*or not*)
		Markers: Sharing information within the group, seeking feedback about team performance, discussing errors or problems, experimenting to gain insight. (*Not sharing information, not seeking feedback, not experimenting, ignoring feedback from experiments.*)	Markers: Making a change, achieving closure on a decision, implementing results of an experiment, finalizing a plan, improving performance, transferring new knowledge to others. (*Not changing, not deciding, not improving, not transferring knowledge.)*
Team Pattern	Teams Exhibiting Pattern	Illustrative Data	Illustrative Data
Reflection and action	Beanstalk, Maverick, Transportation, Computer Integration, Stain, Tech	"Martha is . . . very good at making sure others in the company know [what we're doing] and getting their input. . . . She asks for input frequently." (Beanstalk, interview with member) "We learned . . ." (Beanstalk, interview with leader) "We learned how to learn from customers. . . . We learned to listen to what they're saying." (Maverick, interview with team member) "We asked management to come in and tell us their thoughts. This was key. . . ." (CIT, interview with member) "Each team member got information and ideas from a different group in the company." (CIT, interview) "Could you give us an idea where you think we are [as a team]?" (Stain team member, at the start of a team meeting, asking the interviewer) "Sometimes if we have a quality issue, we're not sure about something we've just done—we will bring the others in without telling them what the issue is to ask them if they see a problem with this part. Second opinion type stuff." (Stain, interview with member) "I talked to third shift, R and M, they had trouble with 843. . . . I checked [several factors] but that didn't account for it. . . . I think it's [operator error]. . . . Maybe that stain needs to come with special instructions. . . ." (Tech, observation of team meeting) In the daily team meeting, Angela described, "printer problems with those labels" and asked, "Who can we ask for help?" Rob responded, "How about asking the vendors who make the labels?" (Tech, observation of team meeting)	"I spend 1 day a week in [other site] where other marketing people are . . . to keep them informed. . . . Denise keeps us connected to the advanced applications area, and they work with customers to find new ways to use our products. . . . Margo goes to the engineering and manufacturing people to make sure they're up to date. . . and [she sits] in on the operations team." (Beanstalk, interview with member) "There have been a lot of iterations. It's like reducing a sauce by half. It's a more flavorful sauce, a more complex group of ingredients, but the end result is simpler." (Beanstalk, interview) "The team changed a design element in response to customer feedback, despite not liking the feedback." (Maverick, interview) "We tried different meeting lengths and settled on half day." (CIT, interview with member) "It came out at every meeting, so we implemented [that feature] . . ." (CIT, interview) "We used to have to wait for supplies for a long time; [now], whoever might be there, if there is something that's needed, I think someone just goes and gets it. We used to have to sit and wait. Now, we just all kind of look and see what needs to be done." (Stain) ". . . that's a big change from when I first came [when] only the work leader knew how to read the routing. Now . . . just by looking, we can [all] tell right away what we need to do next." (Stain) "I will go over today to help them do inventory, and show them how to use our process." (Tech, observation of team meeting)

Table 2 (cont'd.) Team Learning Behavior Classified into Categories of Reflection and Action

			After Angela described, "printer problems with those labels" and asked, "Who can we ask for help?" Rob responded, "How about asking the vendors who make the labels? They probably know how to fix it," and Ken agreed to make the call. (Tech, observation of team meeting) "Team members spread shifts around the clock, so that someone is always available. One member thus worked from 2:00 A.M. to 10:00 A.M. each day, making himself available to the two night shifts while still being able to meet and work in the early morning with rest of his team." (Tech, data)
Reflection without action	Strategy, Radar	"It's part of [our] search for the truth, to contemplate the initiative, to build an almost irreconcilable impasse between kicking that initiative off and tending to today's business. It [a new initiative] becomes so large that it becomes a conundrum. There's nothing graceful about it. There's nothing easy about it." (Strategy team member, observation of team meeting) "We would go down a path awhile, develop details, and later abandon it. Each path we went down too far represented time wasted. . . . We had a preconceived notion of what was important, which prevented us from seeing it. . . ." (Radar, interview with team member)	*"We magnify the risk of [an innovation] to a point where we're at truly an impasse. We can't fund it. We can't begin it, because we're afraid of losing. . . ." (Strategy, observation of team meeting)* *"We do, around here, have a tendency to not take the time to put it together, to bring it to a conclusion. Everybody can leave [a meeting] with their snippets being heard, but we didn't arrive at some consensus, so we can understand what happened—and then we go away. And then I'm still throwing my snippet out at the next meeting" (TMT)* *"Privately, team members explained that, although Radar changed directions during the project, it did not do so quickly enough. In one member's words, "We did make changes, but too slowly." Time was wasted, action was not taken on insights developed through these experiments." (Radar, interview)*
Neither reflection nor action	Storage, Dealer Services, Computer Support, Facilities	*"I don't get honest feedback . . ." (Dealer services, interview with team member)* *"They were having problems with the glue but they didn't get help." (Storage team observer)*	*"People are leaving, but none of the problems get addressed.* *There's no opportunity to gain skills, no opportunity to grow . . ." (Dealer services, interview)* *"They just sit and don't work, then they get to do overtime on Saturday." (Storage team observer)*

team made little progress on its stated task of developing and selecting a new business strategy. I observed numerous examples of collective reflection but no evidence of decisions being made. Instead of systematic review of customer data or vigorous debate of alternatives, the team used its time together to engage in a kind of philosophical discussion as one executive commented in the fourth meeting.

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> then we go away. And then I'm still throwing my snippet out at the next meeting.

Despite such evidence of critical self-reflection, no actions were taken to change the observed weaknesses.

Team members appeared highly engaged in the ongoing conversations. Indeed, this reflection was often engaging and creative, sprinkled with metaphors and abstract ideals. These metaphors conveyed a speaker's observation indirectly. To illustrate, the senior marketing executive, Greg, commented, "It's part of our search for the truth . . . we think we'll discover somehow that there's a kernel in here that will create a whole cornfield." Here, he suggests that the team holds the unrealistic hope of finding a single leverage point (a "kernel") that will be so powerful (creating a "cornfield") that the answer to what to do next will be clear. By using a metaphor, Greg *indirectly* states his criticism of the team's process (that the team avoids committing to a new strategy, due to an unrealistic search for a perfect solution). Similarly, in a later session, George, a senior manufacturing executive, used a metaphor to respond to another metaphor about directing the "ship" of the company by "turning the rudder."

> Listening to Bob talk about the ship, I'd like to explore the difference between the metaphor of the ship and how the rudder gets turned and when, in contrast to a flotilla, where there's lots of little rudders and we're trying to orchestrate the flotilla. I think this contrast is important. At one level, we talk about this ship and all the complexities of trying to determine not only its direction but how to operationalize the ship in total to get to a certain place, vs. allowing a certain degree of freedom that the flotilla analogy evokes. I think that's another part of this . . .

The CEO interrupted,

> There's a question of doing *what* you want to do and doing it *how* you want to do it. But you can't have people just going off and doing what they want to do. You know, some of them may be playing baseball all day long. But, we have to have some alignment with the corporate directives.

In evoking the flotilla-vs.-ship metaphor, George appeared to the CEO to be arguing against a single new business strategy, advocating, instead, a general direction that leaves individuals or business units flexible to make their own decisions. Here again, the metaphor protected the speaker from being direct and thus from the potential social costs of raising a point of view that others might reject. Saying his point directly—if the CEO's interpretation was correct—would require admitting a desire to have the team abandon the strategy team's formal goal.

Further reducing the precision of the conversation, each of these metaphors conveyed implicit promises. Kernels give rise to cornfields; large ships are redirected by turning small rudders; flotillas are both flexible and seaworthy, allowing personal choice. In this way, a metaphor acts as a kind of complete story that is not itself refutable. What *can* be refuted is its relevance or accuracy in describing the situation; however, this did not occur in either the above or other exchanges that I observed. Instead, one metaphor was answered with another. Specifically, when the CEO interrupted, he was frustrated by George's point yet did not say so. Instead, he remained equally indirect, mixing metaphors with his choice of imagery. His comment suggested that he believed that George was advocating an absurd degree of freedom, in which employees would be free to do whatever they want with their time—even if that meant "playing baseball." As George did not respond to clarify, such specificity was never reached. Employed as substitutes for specific data or proposals, metaphors—which can promote shared understanding through the vehicle of analogy—may have helped the team to avoid articulating concrete and perhaps difficult choices.

Team members rarely inquired to clarify issues in which there might be misunderstanding or disagreement. Inquiry might have facilitated progress on the team's collective learning task, but members tended not to challenge each other's abstract language. For example, in the second meeting, George proposed that the company was unable to innovate effectively.

> We deify people, sequentially, certain designers or certain innovators . . . It takes almost a philosophical bent, because of some behavioral issues—in the way we collectively behave. The thing that strikes me lately . . . is the company's almost absolute inability to gracefully try a new idea.

Without an example, his claim that the company is unable to try a new idea may mean different things to different people. No one asked for specifics, and George continued,

> It's part of the search for the truth, to contemplate the initiative, to build an almost irreconcilable impasse between kicking that initiative off and tending to today's business. It [a new initiative] becomes so large that it becomes a conundrum. There's nothing graceful about it. There's nothing easy about it. And we're culturally unable to take an experimental, short-term experimentation approach to the market.

Greg, built on his line of thinking, remaining abstract.

> We magnify the risk of [an innovation] to a point where we're at truly an impasse. We can't fund it. We can't begin it, because we're afraid of losing.

At this point, Bob, a research and development (R&D) senior executive, jumped in, disagreeing slightly but, like his colleagues, without providing examples or suggesting implications.

> We're big on innovation, but we're terrible on evaluation, which is when you say, 'okay, move ahead.' Or, 'this one doesn't go.' . . . We don't get to that. What we do is, we make definitive issues about what we believe in, but now if you're going to ask me to rank investment priorities, two things have to happen. One is identify what those investment priorities are, and what the real opportunity is, and then you own it. And then I can say okay.

Although here Bob disagreed with Greg and George—claiming the company is good rather than bad at innovation but is unable to prioritize—his point was made abstractly, avoiding confrontation.

The team continued to discuss the company and its situation abstractly in this way, minimizing direct disagreement and postponing resolution of the self-assessment process. By the end of six months, little progress and no decisions had been made. Given the importance of the task and the seniority and experience of the team members, this lack of learning can seem puzzling.[7]

Radar. Exhibiting a similar pattern in a different context, the "Radar" team was a product development team (PDT) formed to design a new component to augment an existing product. The team consisted of members from design, engineering, marketing, finance, and manufacturing—some of who were simultaneously members of other PDTs. Analysis of data from a half-day meeting and interviews with team members revealed frustration and stagnation, despite the team's suggestive high-performance name.[8] Although team members sought customer input, they did so only after considerable development work had been completed, and thus learned less than they could have from the data and experience available. The team's ultimate solution did not reflect customer needs. As one member reported,

> We tried to solve a problem—to create a design—but we discovered that customers were not interested. They were not willing to pay more for it. [The product we developed] solved *our* problem, not theirs.

Privately, team members explained that, although Radar changed directions during the project, it did not do so quickly enough. In one member's words, "We did make changes, but too slowly." Independently, a senior executive in R&D reflected on Radar's performance in a similar way, "they were too methodical, too detailed in their wandering. . . . They did not do enough checking with customers until too far along. . . . They did learn, but not fast enough." An engineer on the team explained the journey similarly, "We found ourselves going around in circles a lot. Sometimes this took a lot of time." Team members reported that ideas were adhered to for too long, despite private awareness of limitations, team meetings did not surface these beliefs. One source of delay was Radar's use of a vendor to obtain customer data—a move that distanced the team from direct feedback. A team member admitted "We talked to a variety of customers by phone. Actually, we hired a company to do it, but then we did it ourselves the second time." Not having talked to customers themselves, the team had lower quality data to inform team reflection, or at least data that members understood less well. In general, Radar's reflection was internally focused, rarely reaching out to others in the company. Team members confided to me that they "stayed away" from senior management, waiting until they had more answers to communicate.

In team discussions, members did disagree; however, the team leader, Jan, did not welcome it, such that it was difficult to create an effective team-based resolution of the issue. For example, in a team meeting, I observed him insisting that his view prevail. While discussing financial projections to be submitted to management, he advocated "leaving freight [costs] out . . . to make the numbers look better," to which the finance team member, Bud, responded, "I'd rather have real life." Jan fought back, "I'd rather have a footnote [citing freight costs]." At this point, another chimed in to support Bud's position, but Jan continued to advocate his view by saying, "We didn't do it [include freight] before; I don't want it to look inconsistent." Jan appeared annoyed and did not yield, likely contributing over time to frustration and reluctance on the part of others to contribute ideas. Radar, thus had discussions that qualified as reflecting on its work, using feedback from customers, but made only modest and delayed changes as a result. The quality of team reflection was clearly limited, precluding true collaboration and synergy from blending different members' ideas.

Iteration Between Reflection and Action to Produce Change

How does the team process differ when team reflective discussion leads to change? In contrast to Radar, another PDT, Beanstalk, frequently sought feedback, experimented with numerous partial solutions, analyzed the results for insights, and tried something else.

Beanstalk. Observation of a team meeting revealed an energetic exchange of ideas and arguments. Consistent with this, describing his experience on Beanstalk, Bud observed that, unlike other teams he'd been on, there were no "Monday morning quarterbacks." He explained that people speak openly *in* the team meetings about concerns and disagreements whereas in other teams, they wait until the meeting is over and speak privately "in the hall." He continued, "They bring [conflict] up directly, they don't

let it fester. . . . There's healthy conflict, they're always challenging each other's notions." Jack, an external design consultant explained, "These people *like* to challenge and communicate. Denise and Martha are great at challenging things. The product will be more successful because of it." This suggests that one difference between teams that change course and those that resist change is the quality of team reflection. In Beanstalk, team members uniformly described the discussion as lively, energetic, and open. Team members felt they could jump in easily with ideas and observations without struggling to put them into acceptable terms.

In contrast to Radar, the quality of team reflection was enhanced by proactively seeking relevant data, through talking with customers and others in the organization. Beanstalk members actively sought input and feedback from senior management and from other departments such as marketing, which informed the team's reflection. For example, Jane, the marketing representative, explained, "I spend one day a week in [another site] where other marketing people work," to get their feedback.

This proactive boundary spanning (Ancona 1990) can also be a way of taking action to implement change. For example, Jane reported,

> Denise keeps us connected to the advanced applications area [a group] that works with customers to find new ways to use our products. . . . Margo goes to the engineering and manufacturing people to make sure they're up to date. . . . and [she] has to sit in on the operations team [to help ensure production goals will be met].

Here, the team is ensuring that what they learn is used to update other groups that are interdependent with Beanstalk. Moreover, in the process of reaching out to others, the team improved its ability to communicate. As Martha explained, "As we promote Beanstalk internally, I've learned to ask questions in advance, to see where people are. Then I try to incorporate that [knowledge] into my delivery."

Following reflection, the team experimented and made changes in the product design. As Martha described it,

> There is a lot of testing of new ways to do stuff. We're doing design and engineering at the same time. It's wild. It's incredibly complex. We need to constantly be creative about the mechanisms. . . . There have been a lot of iterations. It's like reducing a sauce by half. It's a more flavorful sauce, a more complex group of ingredients, but the end result is simpler. We made it easier to use, more multifunctional—by continually challenging ourselves to find what is essential.

In this example, the team both reflects and takes new action. Specifically, Martha reported that the team experiments with more than one idea at a time (in contrast to Radar). Also, team experiments led to changes (new iterations of the design) and, finally, the end result was improved over earlier efforts.[9]

Tech. The technical support team ("Tech"), a PT that maintained and provided technical assistance for production equipment in a parts factory, also engaged in team reflection and new action. In observing a daily 7:00 a.m. team meeting, I observed discussion and reports of newly made or planned improvements. An eagerness to improve characterized much of the team's conversation. I noted several references in the half-hour meeting to trying something new, making changes in the work process or equipment, trying a new formulation, and bringing in another person from elsewhere in the plant to work with the team.

The meeting began with quick updates. Each report was task focused, describing problems or solutions that arose within the past day or two; others asked questions and offered suggestions. For example, after one member, Angela, described, "printer problems with those labels" and asked, "Who can we ask for help?," another member, Rob, responded, "How about asking the vendors who make the labels? They probably know how to fix it." And, Ken offered to make a phone call—closing the loop. Rob also reported on his use of new, trial equipment for conducting these tests, "I used the 'color analyzer' [he paused]. I know it's not the right word," and looked to Ken for help. Ken responded supportively, "photospectrometer." Rob continued, "It's worth the $12,000 because we will save $25,000." Ken agreed with Rob's assessment, and promised to follow through on acquiring the machine.

Similar to Beanstalk, Tech's learning included reaching out to coordinate with other organizational teams. On their own initiative, team members spread their shifts around the clock to better support the plant. One member worked from 1:00 or 3:00 a.m. to 9:00 or 11:00 a.m. each day, making himself available to the two night shifts while still being able to meet and work in the early morning with the rest of his team.

Understanding Differences in Team Learning

The observation that many of the studied teams did not learn is not surprising in the context of existing literature. According to organizational learning theory, without striking mismatches between current routines and environmental conditions, organizations tend not to seek alternative ways of doing things (Levitt and March 1988). Similarly, the group literature notes that groups persist in

habitual routines, even in the face of external stimuli that require change (Gersick and Hackman 1990), such as the industry changes these teams faced. A production team that resists cross training and help seeking, and fails to improve its own processes is consistent with theories that emphasize the stability of group routines and with those that document resistance to organizational change in general (e.g., Walton 1975). Likewise, management teams that talk but fail to act have been noted (Pfeffer and Sutton 2000). This study suggests; however, that change occurs in some teams but not in others situated in the same organizational context, an observation that is not explained by the above theories.

Half of the teams studied did engage in reflective discussion about process or task that led to subsequent changes. All teams were situated in an organizational and industry context that included explicit pressure for change or improvement, which organizational learning theory suggests is a trigger for change (Levitt and March 1988). The management teams studied, with more perspective and greater exposure to industry changes than teams lower in the hierarchy, may have been more aware of these external pressures for change than teams lower in the hierarchy; however, they were no more likely to engage in team learning. Similarly, pairs of teams of each type were often well matched in terms of such factors as team composition and task (Hackman 1987). Thus, neither team type nor team structures were associated with team learning patterns. Instead, interviews with individual team members reveal striking differences in interpersonal perceptions, typically related to informants' views of power and how formal power played out in their team, and these perceptions help explain how team learning unfolded. Power is defined in the literature as relative dependencies between people for valued resources (Emerson 1962, Depret and Fiske 1993). For example, if a person is more dependent on a partner than vice versa, then the partner is thought to be more powerful.

Power and Perceptions of Interpersonal Risk

In the six teams exhibiting both reflection and change, power differences were either absent or actively minimized by the leader. For example, a striking difference between Radar and Beanstalk was members' perceptions of power and hierarchy. Although both PDTs had formal team leaders, the relationship of the leader to the team and to others who interacted with the team was different. Jack, the design consultant who worked with both teams, described the difference in leadership as follows: "[For Beanstalk,] I pick up the phone and call anyone . . . but for Radar, I have to go through Jan." In Beanstalk, any of the members spoke for the team. In Radar, Jan held onto the role of spokesperson. In team meetings, Jan was a "boss" who took on the role of making final decisions. In Beanstalk, Martha was a facilitator who encouraged input and consensus.[10]

The shadow of power extended beyond team boundaries. In particular, Radar's product development assignment from R&D senior management was relatively well defined and many team members believed it would not work; at the same time, challenging senior management did not seem viable either. Coping with these two unattractive alternatives, team members developed negative attributions about each other's motives. For example, the marketing representative reported,

> We struggled through the problem statement, because it [the project] was clearly for [the company's] internal needs, not for the customers. . . . We had a lot of naysayers, who just wanted to do it [work on the assignment from management], rather than develop a problem statement. They were worried about getting their hands slapped by management.

His belief that other members were unwilling to do a thorough analysis because they wanted to please senior management could not be raised publicly without appearing to accuse others of political motives. Perhaps this reluctance to engage in open discussion contributed to the pattern of staying away from customers, thereby avoiding rejection of the ideas that they were developing. Given serious doubts about the project's viability as specified by senior management, and unable to challenge this directly, they avoided confrontation with the critical feedback that they feared. The result was time wasted pursuing poor solutions and a gap between members' insights about their predicament and the team's ability to take new actions. The other two PDTs, perhaps because they had had more open-ended product development assignments, expressed no concerns about senior management.

At the top of the hierarchy, despite referring to themselves as a team, members of the top management team (TMT) were highly sensitive to hierarchy and power, privately telling me stories about what happens when people disagree with the boss. These private data revealed perceptions of the team that were highly consistent across informants. In interviews, team members revealed a fear of speaking up and making mistakes in the group. They described, in somewhat dramatic terms, management "purges" that included the firing of the previous CEO. Several described their concern that the company's espoused values of organizational learning and teamwork were in conflict with an unambiguously hierarchical management structure, leading to what several informants called "management gridlock." Management gridlock,

one explained, is produced when "everyone feels a need to participate" by adding their views—clogging the roadways—but fear and deference to hierarchy fosters politeness and indirectness, such that the traffic is not easily cleared. This was never discussed in the group as a whole, despite all members understanding it. The gridlock image presents team members facing two unpalatable options: Speak up to contribute as expected and risk saying something wrong, or do not speak up and risk being sanctioned for lack of participation. Pushing for action was particularly risky, as a concrete suggestion was likely to face opposition. Speaking up, but in abstract terms, was a strategy for avoiding excessive personal risk (Argyris 1993). The safest way to cope with these fears as a group was to engage in abstract conversation, a time-consuming and safe alternative to action that met the cultural norm of participation.

In sum, in both the Radar and strategy teams, the openness and quality of team reflection suffered in the presence of private concerns about power. Both teams promoted the appearance of team reflection with making decisions or implementing design changes, in part because team members were unable to productively disagree with the team leader. One member of Radar explained that it was difficult to speak up with a different point of view, because Jan "didn't want to hear it." I observed Radar team members' frustration when Jan discounted their input on freight costs. Past work on learning has found that it is difficult to try new things in organizations without psychological safety (Schein 1993, Edmondson 1999). These data have the potential to extend our understanding by emphasizing the role of power and how people's fears of offending those with power inhibit the collective reflection process. A specific insight that emerges from these two teams is that, when members had concerns related to power, teams could take on the "look" of reflective discussion and learning without follow through in the form of action. A lack of psychological safety, thus, did not preclude behaviors that promoted discussion and insight. However, the most salient insights gained by individuals in these discussions (such as "it doesn't pay to disagree with the leader around here") were those that were kept private.

In the other teams that failed to act on opportunities for change, concerns about team leaders' power were also evident. Members of the dealer services team believed that the leader did not listen to or address team problems, and members of the facilities team reported that they "waited to hear what [the leader] thinks before talking." Except for the storage PT, where I did not hear specific concerns about the leader, all teams that neither reflected nor changed volunteered concerns about how the leader behaved and expressed a reluctance to openly speak.

Additionally, leaders of all four teams that did not implement changes removed an important source of motivation to learn as a team, by minimizing the degree of task interdependence (Hackman 1987) in the way the team's work was carried out. This allowed team members to carry out their work relatively independently, such that they may have felt less need to check in with each other to learn or collectively self-assess the team's work.

In the teams in which both reflection and change occurred, power differences were either absent or mitigated by the leader. All six teams had team leaders whose behaviors encouraged input and debate. People in these teams did not describe concerns about power; in contrast, most described comfort being themselves at work. As a Tech team member volunteered, "We don't wear a mask. . . . we don't have to have a 'workface'." Another explained, "It's the worst feeling when you need help but you're afraid to ask for it. . . . This team isn't like that—it's easy to ask."

All six teams had considerable task interdependence, presenting many opportunities to collaborate to improve team processes. Beanstalk's and Maverick's product development tasks were challenging and unconstrained by senior management, allowing the team to brainstorm and experiment. Tech faced many opportunities for improvement in a factory setting that was far from streamlined, and the leader supported the team in acting on them. The computer integration, transportation, and stain teams also had norms of working interdependently on the shared task, allowing them to respond to the leaders practice of encouraging input.

Another aspect of the learning process in these six teams is that it functioned within "systems of information" where logical conclusions for action could be drawn from objective data, rather than within "systems of meaning" (Lant and Shapira 2001). In contrast, interpretive processes (Lant and Shapira 2001) in the other six teams—particularly related to the meaning and consequences of power—led members to develop *implicit* goals of self-protection that effectively supplanted *explicit* team and organizational goals. Thus, these data highlight two kinds of team goals. One is a team's formal organizational goal toward which collective learning is computational and explicit. The other is the enacted goal pursued by a team, such as getting overtime in the storage team or not upsetting the boss in the strategy team. The degree to which a team actively learns in pursuit of its organizational goal seems to be influenced by interpersonal perceptions of power and risk, as well as by group norms.

Although the selection process for this study was not designed to produce a representative sample of work teams and does not allow conclusions to be drawn about relative percentages in each category, the data do suggest that team learning that includes reflection and action is possible without expert facilitation or profound interpersonal skill. Recently, Argyris (2000) similarly observed that although interpersonal skill is needed to learn when faced with interpersonally threatening problems,[11] it is not needed for learning otherwise. This study provides some evidence to support this point of view. Teams with task interdependence and leaders who could mitigate the potential fear that their relative power over other members might elicit engaged in an effective team learning process.

Team Type and Organizational Learning Goal: Integrating Radical and Incremental Learning

Team-learning failures presented different implications for the organization's learning depending on the type of team. Four of the 12 teams studied were engaged in tasks that could help the company explore, develop, and select new options or capabilities, by definition radical learning goals (see Table 3). First, the task of the TMT was to develop a new business strategy in response to falling market share and profits. As others have noted, this kind of organizational learning is carried out by senior management, who must question mental models (Senge 1990), update fundamental organizational premises (Hurst et al. 1989) and identities (Brown and Starkey 2000), and create new visions of the future (Bennis 1993). Second, PDTs develop new products that allow organizations to meet new or changed customer needs, and are thus a central agent of organizational learning (Schoonhoven et al. 1990, Lynn 1998). The PDTs studied here faced a learning opportunity that could lead to the production of new knowledge and products. Failure to do this effectively led to fewer new ways for the company to attract and keep customers. In sum, when one of these four teams did not learn, the organization was deprived of a new capability, and thus of an opportunity to better meet the changing needs of the market.

Eight teams—the MMTs, PTs, and ISTs—faced tasks conducive to incremental learning. Two of these teams were formed explicitly to improve current organizational processes, and six were engaged in routine work for which improvement was possible. In the latter group, the facilities MMT managed the company's network of factories, office buildings, and dealerships, and the transportation MMT managed a fleet of trucks and the process of shipping products to dealers and large customers. Both activities were highly constrained by the organization's business goals; the teams had discretion only over how to carry them out. In both teams, a central goal was improving efficiency and reducing cost, while not harming the perceived quality of the services. Similarly, all three PTs were largely constrained to incremental learning. Although changes introduced often felt dramatic for members themselves, as illustrated by Tech's purchase of a piece of new equipment to save time and money, the impact of these changes was constrained to helping the company doing the same work better. Tech, for example, improved its ability to help other factory teams improve product quality and cost and changed members' schedules to remain connected to all plant shifts. Conversely, the storage team's resistance to change and use of overtime could adversely effect product quality and cost. In the former group, the computer integration team facilitated cross-departmental collaboration by developing consistent computer systems, a source of internal efficiency. For the most part, effective reflection and change in these teams could lead to improvement of existing organizational capabilities, not to the development of new ones (see Table 4).

In sum, this organization's learning can be seen to consist of learning processes in different teams, serving different organizational goals. Radical and incremental learning goals both involved reflection and action components, although these processes differed in content and nature, as shown in Table 3. For radical learning, reflection drew upon less well-defined sources of information than for incremental learning. As shown by the TMT and PDTs discussed above, part of the creative challenge in radical learning is to figure out where to obtain information and feedback (Garvin 2000). Also, action is likely to involve decisions about new directions, rather than about ways to execute current activities better. As shown in Table 4, for incremental learning, reflection involves assessing how well the team is meeting its goals or serving its customers' needs, and finding ways to improve efficiency or quality while doing this.

Implications for Organizational Learning

To summarize the lessons of this study, I draw from my analyses of 12 work teams to suggest new insights for organizational learning theory. By using a group-level lens, I developed a different, but complementary, understanding of the phenomenon of organizational learning than organizational- and individual-level perspectives have previously provided. In this section, I build on the arguments and data presented earlier to elaborate on organizational learning as a process that is local, interpersonal, and variegated.

Table 3 How Organizational Teams Map to Radical and Incremental Learning Goals

The Teams			The Learning Process	
Type of Team	Role in Organizational Learning	Type of Learning	Developing Insight (*Reflection*)	Taking Action (*Change/Improvement*)
Top management team	Diagnosing context, creating strategy and vision, developing and communicating strategy and vision.	Radical* (*Doing new things*)	Acquire market and competitor information, analyze company product lines and customer perceptions of company, develop strategic options. Assess new projects and changes.	Make tough strategic choices, communicate new strategy, and authorize new development projects.
Product development team	Developing new products (to implement strategy and vision).		Listen to customers, diagnose needs, design solutions and options. Integrate customer voice with manufacturing needs and strategic direction.	Experiment with solutions, make choices, deliver designs to manufacturing.
Middle management team	Execute and continuously improve specific facets of the organization's existing operations.	Incremental (*Doing things better*)	Self-assess performance in specialized area: based on meeting customer and employee expectations. Assess changes.	Implement changes as needed.
Internal services team	Deliver and continuously improve services that allow different parts of the organization to coordinate with each other, promoting the effectiveness of the organization as a whole.		Deliver services, self-assess current performance, ask others in the organization for feedback, design appropriate changes. Assess changes.	Implement changes as needed.
Production team	Execute and continuously improve manufacturing and/or delivery of organization's products.		Make products, diagnose quality problems, self-assess current performance, ask others for feedback, propose changes. Assess changes.	Implement changes as needed.

*The terminology of radical and incremental learning was used by Miner and Mezias (1996); similar conceptualizations of two types of learning include second-order vs. first-order learning (Lant and Mezias 1992), and exploration vs. exploitation March (1991). Incremental and radical effectively communicate the intended distinction in this paper.

A Group-Level Perspective on Organizational Learning

First, as predicted, this qualitative study provides suggestive evidence that organizational learning is a variegated phenomenon. Quality and use of collective reflection varied across teams in the same company and industry context, even when teams faced similar tasks. This provides preliminary empirical support for the theoretical argument presented at the outset of this paper. A core argument in this paper is that the collective learning process in an organization is inherently local. The learning process itself necessarily focuses on some bounded task or opportunity, and it occurs through conversations among a limited number of interdependent people. As such, it is subject to variance from group to group. Past work on organizational learning has not examined the extent or nature of variance in learning within a given organization or considered how this localness may affect an organization's ability to adapt to critical changes in its environment. Thus, one contribution of a group-level perspective is to call attention to variation across work groups within the same organization. In contrast, conceptualizing or-

Table 4 Organizational Effects of Team Learning Failures

Type of Team	Organizational Effects of Breakdown Between Insight and Action	Implications for Organizational Learning
TMT	The organization's ability to respond to changes in the market is severely limited: New strategies are not articulated; other organizational teams are left improving (or doing) activities that are not optimally suited to the new environment.	Inadequate or insufficient exploration of new capabilities to meet changing market needs
PDT	A potential new product is not introduced, or a suboptimal product is introduced. Over time, the performance of the organization suffers from a shortage of timely, high-quality products that serve market needs.	
MMT	Business as usual persists. As context changes, organizational performance suffers from failure to adapt ongoing operations accordingly.	Inadequate exploitation of current capabilities—lost opportunities to improve cost, efficiency, or quality.
PT	A product or set of products suffers from inadequate quality and cost improvement, potentially harming customer satisfaction or profitability.	
IST	Efficiency of coordination across organizational subunits suffers, opportunities for individual performance improvement and training on the job are lost.	

ganizational learning as a process in which an organization as an entity adapts (or fails to adapt) to its environment threatens to obscure the way some groups can learn while others adhere to routine.

A second theoretical contribution is the salience of power and fear in teams and its consequences for collective learning. Previous research has shown that individuals with less power in organizations are particularly concerned about appearing incompetent in front of those with more power and thereby losing access to valued resources and professional rewards (Lee 1997; Winter 1973, 1993). Here, the observation that beliefs about power and psychological safety can disable individuals' willingness to actively and honestly contribute their ideas, evaluations, or suggestions provides new insight into the interpersonal nature of organizational learning that goes beyond defensive theories in use (Argyris 1982). The implications of psychological safety, previously shown to vary significantly across organizational work groups, are that an organization's ability to adapt—to make sound decisions and implement timely changes in response to changes in the environment—can be thwarted by interpersonal processes that take place within the context of smaller groups. In sum, not only do teams differ in psychological safety, these differences can have far-reaching implications for the organization's ability to learn.

Third, not only is the learning process variegated at the group level of analysis, the nature of the learning goal also is nonuniform across teams within an organization. I found that both radical and incremental learning goals were simultaneously addressed in the same organization because of different learning tasks faced by different types of teams. Data analysis further implied that both radical and incremental organizational learning are inhibited by fears about speaking up in one's own team, when team leaders' power over other members is salient. This observation was as salient in the boardroom as on the front lines, and had consequences ranging from the strategic and far reaching to the operational and highly bounded. For example, when interpersonal concerns inhibit learning in a TMT, the organization may lose an opportunity to pursue radical learning goals that allow it to successfully meet changes in the market. This certainly appeared to be the case in this organization, where the strategy team met for six months without articulating a new strategy. When the same concerns inhibit learning in an IST, the organization may suffer from inefficiency in a specific work process, such as computer support or order processing, both of which occurred in the teams studied here.

Organizational learning, from a group-level perspective, is both radical and incremental at the same time. Both are, in fact, essential for effective organizational adaptation. The ability to produce new ideas and capabilities is vital to ongoing competitiveness in a changing world, while the ability to assess changes, modify tasks accordingly, and continue to improve efficiency and quality throughout organizational departments is an important component of reducing costs in a competitive marketplace. Table 3 summarized this relationship between team type and learning goal. Specifically, the TMTs and PDTs

in this study served radical learning goals for the organization, while MMTs, ISTs and PTs focused on incremental learning goals. Table 4 showed that a breakdown in the team learning process has different implications depending on the type of team. The TMT (and to a lesser extent, the PDTs) in this study had the potential to limit the scope of learning activities in which other teams could engage. In this way, incremental learning can be constrained by opportunities created by radical learning.

Limitations

This study was exploratory and its findings are limited in several ways. First, the study sought to develop rather than test theory, and patterns that emerged in the data do not constitute formal tests of the categories identified. Second, although the studied teams varied considerably, they all worked in the same organization and may not reflect variation in teams in other companies, limiting the study's generalizability.

A few observations from the study have strong face validity and suggest directions for future meso-level research on organizational learning. First, the distinction between reflection and action at the group level emerges as helpful to understanding collective learning processes in an organization, because it allowed a distinction between teams that had the "look" of reflective learning without real change and those who engaged in more complete learning cycles.[12] Second, factors such as leader behavior and task interdependence that were associated with patterns of reflection and action are worth testing systematically in future research. Third, the question of how organizations can balance the need for radical and incremental learning by allocating different learning responsibilities to different teams emerges as an opportunity for future research.

Conclusions

Organizations are complex systems that carry out a variety of tasks. This paper contributes to long-standing interest in the management literature in how such systems learn—by digging into the details of how people work together to carry out and modify the tasks that together produce and deliver products and services to customers. By focusing on work groups, this study calls attention to certain factors and necessarily ignores others. Most notably, a group-level perspective on organizational learning emphasizes interpersonal perceptions and behaviors. Its lens is squarely focused on interactions among a small number of individuals and how these enhance or inhibit the process of building new knowledge and initiating new action. Team leaders whose behaviors encourage input and discussion, resulting perceptions of psychological safety, and tasks that require interaction all seemed conducive to a healthy cycle of reflection and action that enabled progress on organizational goals. These observations add to—rather than supplant—theories at other levels of analysis.

A group level of analysis in organizational learning, consistent with the meso approach as presented by Rousseau and House (1994), is important in linking individual-level factors such as cognition and behavior to organizational-level outcomes. Individual-level theory identified self-protective cognition as a constraint on learning (Argyris and Schön 1978), and organizational-level theory observed traps and biases that companies fall prey to as entities (Levitt and March 1988). A group-level perspective begins to connect these disparate observations. In the face-to-face setting of the team, individuals make sense of their organization—its interpersonal climate, norms, goals, and how it serves its market. They use this understanding to make implicit decisions about what the organization should do, but also about what can be said and what is better left unsaid in their local work group. These teams—through discussion and task execution—produce outcomes through which their organization designs, produces, and delivers products and services that meet (or fail to meet) customers' needs.

Further, although this study found that some teams learned more than others did, it also produced evidence that a collective learning process can occur naturally, without outside intervention. Half of the teams studied seemed eager and able to reflect, engage new possibilities, and implement improvements that served organizational goals. In this way, the study suggests that an organization can learn—team by team—through many simultaneous and partially overlapping team-learning journeys. It also suggests that much can go wrong in this process. When power differences created perceptions of interpersonal risk, interpretive learning processes gave rise to an enacted goal of self-protection. Ensuring that individual or collective insights or ideas were applied to initiate change or improvement, thus, could not be taken for granted.

This study points to a particular kind of organizational tragedy. It is possible for teams deep within an organization—such as Tech, or Beanstalk—to be learning and taking action with energy and excitement—while at the same time, a TMT is unable to act upon what *its* members know, such that impressive pockets of team learning are limited in their impact on the organization by a lack of effective team learning at the top. Organizational learning can be seen as a process of cascading team learning opportunities, independently carried out, but interdependent in their impact on company performance. The independence of different teams means that teams within the

same company can serve either as a safe laboratory in which to experiment or a dangerous proving ground in which interpersonal risks are avoided. Finally, past work noted the need for both radical and incremental learning for ongoing organizational effectiveness, not just the former (March 1991, Miner and Mezias 1996, Edmondson and Moingeon 1996). This study begins to identify different teams responsible for carrying out these two organizational-learning objectives. Future research has much to gain by investigating the boundary processes between different teams, to better understand how team processes interrelate to produce an integrated organizational-learning response.

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Endnotes

[1]For example, Huber (1991) defines organizational learning as diffusion of information in an organization.

[2]Pfeffer and Sutton (2000) note, similarly, that organizational "knowing" does not always translate into organizational "doing," and that knowledge management should only be considered effective if new knowledge is used to produce new action.

[3]The terms work group and team are used interchangeably in this paper to refer to groups of individuals that exist within the context of a larger organization, have clearly defined membership, and are responsible for a shared product or service (Alderfer 1987, Hackman 1987).

[4]For a fuller discussion of this industry-academy research consortium, see Edmondson (1996).

[5]In discussing these findings below, more detail is provided about the markers for each category.

[6]The product this team assembled is disguised. All other team tasks are presented factually, while all names of individuals and teams are disguised.

[7]A similar phenomenon has been described by Pfeffer and Sutton (1999) who studied a TMT in a furniture company that met for months to revise company strategy but made no decisions. A reviewer suggested that threat rigidity might explain the team's stagnation; I discuss this and offer an alternative perspective below.

[8]All team names are pseudonyms, but "Radar" is chosen to closely capture the optimistic spirit of the true team name.

[9]Note also Martha's use of metaphor to communicate with me more fully by evoking an image that I could understand (the flavorful result of combining ingredients into a fine sauce). Unlike in the strategy team, metaphor, in this instance, enhances communication; it provides a way of compensating for my not being a part of the team's actual experience.

[10]Beanstalk and Radar also differed in gender composition; Beanstalk was made up of all women, while Radar included men and women. One other team in the sample, computer support, consisted of only women, and all others were mixed-gender teams. No consistent patterns emerged related to gender composition. For example, the computer support team was one of the four teams that neither reflected nor changed, and Beanstalk was one of the six teams that did both.

[11]Argyris (e.g., 1993) describes a particular kind of interpersonal skill, which he calls "Model 2." Model 2 involves revealing and inviting others to challenge one's own reasoning and inquiring into others' reasoning, as a way to enable organizational learning.

[12]I am indebted to Teresa Lant (1992) for this insight, and for showing me how these teams' reflection was qualitatively different from other teams studied.

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