



Renegotiating Spheres of Obligation: The Role of Hierarchy in Organizational Learning

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Abstract

To achieve organization-wide goals, sometimes multiple local groups must synchronize their learning activities. This paper uses an ethnographic study of a cancer treatment center to develop theory on organizational learning by identifying a process that helped synchronize learning across many local and interdependent groups by taking advantage of hierarchy. Change agents—in this case, consultants—identified the managers of the various groups that would need to change for an organization-wide goal to be achieved, and they met with each manager to renegotiate his or her formal obligations. Through the renegotiation process, the managers came to better understand the organization-wide goal, and the change agents better understood each group's work. After the managers understood and accepted their renegotiated obligations, they changed how they administered resources and expectations in their groups, and the members of their respective groups adapted their practices in response. This process illustrates how the obligations associated with hierarchical positions can be renegotiated in ways that develop improved understanding and, when changed, can shape local activities to favor new goals.

Keywords: group learning, organizational learning, hierarchy, interdependence

Organizational theorists have long recognized that organizations adapt to pursue new goals or to respond to changing conditions (March and Simon, 1958; Argyris and Schön, 1978), but the processes whereby coherent organization-wide learning unfolds remain undertheorized (Wenger, 2000). Prior research has focused instead on theorizing the processes whereby local groups in organizations learn to improve their work activities (e.g., Brown and Duguid, 1991; Edmondson, 2002). This focus makes sense given the broad consensus among learning scholars that organizational learning should be characterized as a local and social activity. Learning is a local activity because it is inextricably tied to the specific contexts in which the work and learning unfold (Lave, 1988;

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Orlikowski, 1996; Wenger, 1998; Brown and Duguid, 2001). And it is a social activity because it involves the interactions and shared understandings that develop among members of groups (Brown and Duguid, 1991, 2001; Edmondson, Bohmer, and Pisano, 2001; Edmondson, 2002). Coherent organizational learning requires these local learning processes be synchronized across multiple groups, but scholars have not yet theorized how multiple local groups improve their work practices together. In addition, as Henderson and Clark (1990) showed, new organizational goals may require complicated changes to the interdependent relationships between groups.

Characterizing a multi-group learning process would be straightforward if it could be explained by the dynamics recognized in the strategic change literature: executives set strategic agendas and make the case for change through organization-wide issue-selling and sensemaking processes (Gioia and Chittipeddi, 1991; Dutton and Ashford, 1993; Dutton et al., 1997; Dutton et al., 2002; Balogun and Johnson, 2004). These high-level strategic change processes are important but cannot fully explain how multiple local groups learn and change together. First, it is not clear how various groups' managers or workers understand exactly what they are supposed to do to meet new goals, both in terms of their local group practices and in terms of changing their between-group interdependencies. Second, organizational hierarchy has consistently proven detrimental to organizational learning: it inhibits experimentation and reflection and tends to perpetuate the status quo (Teece, 1996; Adler, 2001; Bunderson and Reagans, 2011), so the idea that hierarchically driven strategic change would fully explain a multi-group learning process is problematic. If hierarchy has a role to play in the process of synchronizing learning across local groups, new theory is needed to explain why and how. To begin to develop such theory, this study examines an organizational learning process wherein multiple local groups adapt their work practices and their between-group interdependencies together and the role that formal hierarchy plays. I use ethnographic data from two organizational learning initiatives at a cancer center to illustrate a process of formally renegotiating the obligations of each manager whose group must change for a new goal to be met and to show how the process helps synchronize group learning.

ORGANIZATIONAL LEARNING AND THE INFLUENCE OF HIERARCHY

Organizational Learning within Local Groups

Organizational learning has been defined in several ways (see Huber, 1991; Dodgson, 1993; Edmondson and Moingeon, 1998; Crossan, Lane, and White, 1999). This paper adopts Edmondson's (2002: 128) definition that organizational learning is "the process of improving organizational actions through better knowledge and understanding." This definition focuses on learning as the process of improving work practices. It stipulates that learning depends on actual changes to practice and that these changes reflect improved understanding of how to achieve new goals or pursue new opportunities (Argote, 1999; Edmondson, 2002).

Communities of practice theory explains learning among people engaged in similar work. Based in practice theory (Bourdieu and Nice, 1977; Feldman and Orlikowski, 2011), this literature conceives of learning as inseparable from daily

working and also inextricably tied to the specific contexts in which working and learning take place (Brown and Duguid, 1991; Wenger, 1998, 2000). Learning in these communities is characterized as social and participative, involving communal storytelling and the improvised use of shared tools. Each community of practice constructs a shared repertoire of communal resources, including stories, routines, sensibilities, and tools (Brown, Collins, and Duguid, 1989; Brown and Duguid, 2001). Community members learn as they use this repertoire in situated and improvised ways recognized by the communities (Wenger, 1998). An often-evoked vignette from Orr's (1996) ethnography of photocopier technicians illustrates these themes: when a copier machine broke, the repairman found little help from the technical documentation in the manual. Instead, he and a company "rep" learned to fix the machine as they interacted and improvised over a five-hour period, telling stories about past problems and figuring out what to do by collaboratively constructing a narrative. Communities of practice theory thus offers insight into the process whereby people engaged in similar work learn to address shared problems, but it does not explain how interdependent communities learn and change together. Researchers such as Wenger (2000) have called for the study of how *systems* of communities of practice learn.

Group learning theory similarly begins with the premise that learning is by nature local, meaning that the activities involved are carried out in small groups at their point of shared work (Edmondson, 2002). Edmondson, Bohmer, and Pisano (2001) exemplified the main themes from group learning through an analysis of the process whereby surgical groups learned how to use a new technology. One difficulty the groups encountered during the learning process was that the new technology changed the interdependencies among the surgeons, nurses, and anesthesiologists in the surgical teams. The groups successfully learned to use the new technology when they practiced as teams during many trial runs, communicated as they experimented with new behaviors during the trials, and collectively reflected on how the trials were going. Through this process, they were able to collectively adapt, finding new ways to coordinate their within-group interdependencies. As exemplified by that study, the theory of small group learning articulates the specific collective behaviors through which work groups learn. The theories converge around two main learning activities: action and reflection. Action refers to activities that operationalize new or improved practices such as dry runs, experiments, or gaining experience with the actual work in context (Edmondson, Bohmer, and Pisano, 2001; Tucker, Nembhard, and Edmondson, 2007; Nembhard and Tucker, 2011). Reflection includes activities that develop plans for improved practices such as discussing recent trials, soliciting staff ideas, or searching outside the local group for ideas about different practices (Gibson and Vermeulen, 2003; Sarin and McDermott, 2003; Schippers et al., 2003).

Organizational Learning and Interdependence between Groups

In articulating the local and situated nature of learning, these two theories reveal what a complicated idea organization-wide learning is. This point can be illustrated by extending Edmondson, Bohmer, and Pisano's (2001) case of hospitals learning to do new surgery: the prior perspectives explain the process whereby the surgical teams learned the new surgery. But what happens when the front desk also needs to schedule patients differently to accommodate the

new surgery type? And when the sterile processing unit has to change its routines to accommodate new surgical tools? And when the residents need to be scheduled differently to accrue enough cases of the new surgery to graduate? And when the information technology group has to code a new surgery template for the electronic medical record? Each of these local groups would need to engage in group learning activities to modify their practices, and they would have to engage in this process in sync with the many other interdependent groups so that the whole system improves together. The need for and difficulty of such synchronized changes was an important theme in a study by Henderson and Clark (1990), which showed that even a minor technological change can lead to the failure of established firms when the change alters the interdependencies between groups.

Research on between-group coordination offers some insight into how multi-group, extra-local learning processes might differ from local learning processes. First, local groups cannot easily anticipate, observe, or interpret the cross-group consequences of their local changes (e.g., Henderson and Clark, 1990; Dougherty, 1992; Bechky, 2003), which complicates the action–reflection cycle essential to learning (Edmondson, Bohmer, and Pisano, 2001). Somehow the distributed consequences of local changes have to be recognized and managed between different groups. Second, the overarching goal or reason for change cannot be understood solely in terms of any one group's work, so achieving the goal may require abstract descriptions of how work is done and how it must change. This factor complicates the learning process because abstract descriptions of work distort the intricacies of actual work practices and often seem irrelevant to how people go about their work (Wenger, 1998; Brown and Duguid, 2001). Somehow the people who understand the abstract reasons for change must integrate their understanding with the situated “knowing-in-practice” (Orlikowski, 2002) of the local groups.

The Role of Hierarchy

Research on strategic change offers some insight into how entire organizations might change. Leaders in organizational hierarchies drive organization-wide change by selling issues and making sense of proposed changes in ways that focus attention and overcome resistance (Gioia and Chittipeddi, 1991; Dutton et al., 1997; Balogun and Johnson, 2004). Still, the idea that hierarchically driven strategic change dynamics can explain multi-group learning is problematic, as it does not explain how local groups would know what to do to change their work practices and their interdependencies to meet complex organization-wide goals. Also, hierarchy can be harmful for organizational learning because it can inhibit experimentation and reflection (e.g., Teece, 1996; Bunderson and Reagans, 2011). If organizational hierarchy has a role to play in synchronizing learning across groups, we need to rethink which characteristics of hierarchy have been negatively linked with learning, and could be minimized, and which characteristics could be used to advantage.

Hierarchy as social ranking. The first characterization of hierarchy that is negatively associated with learning is hierarchy as differential status, which focuses on the dynamics that emerge when a group has “an implicit or explicit

rank order of individuals or groups with respect to a valued social dimension" (Magee and Galinsky, 2008: 354; Bunderson and Reagans, 2011). Social hierarchy has been shown to inhibit the core learning activities of experimentation and reflection. Within a group, the mere presence of social hierarchy inhibits low-status actors' ability to engage in the critical cognitive states and behaviors needed for experimentation (Brooks, 1994; Keltner, Gruenfeld, and Anderson, 2003; Foldy, Rivard, and Buckley, 2009). Low-status actors are less likely to experiment because they are afraid of losing resources or the approval of higher-status people (Anderson and Galinsky, 2006; Nembhard and Edmondson, 2006). They feel they need permission to experiment rather than feeling they can take initiative (Galinsky, Gruenfeld, and Magee, 2003; Galinsky et al., 2008; Smith et al., 2008). Social hierarchy also complicates reflection. During this kind of group discussion, *who* is speaking often matters more than the merit of *what* is being said (Bunderson, 2003; Wageman, Hackman, and Lehman, 2005; Galinsky et al., 2006; Lammers et al., 2008). In their review, Bunderson and Reagans (2011: 1186) concluded that scholars agree that social hierarchy should be "minimized or eliminated when learning is the goal."

Hierarchy as layered decision rights. A separate body of research explains why hierarchical structures may be useful for maintaining routine operations but are not conducive to learning and innovation (Galbraith, 1973; Mintzberg, 1979; Adler, 2001; Zhou, 2013). First, hierarchical structures favor slow decision making and maintenance of the status quo, both of which can undermine the experimentation and change needed for learning (Teece, 1996). Downs (1967: 160) argued that because the increasing size of an organization "leads to a gradual ossification of operations . . . each proposed action must receive multiple approvals, so the probability of its being rejected is quite high." Programs and positions persist because they are the status quo, not because they are appropriate solutions for ongoing work problems (Colombo and Delmastro, 2002; Nickerson and Zenger, 2004). Second, information flow up through hierarchies is skewed toward communicating positive information, which distorts the diagnosis of problems and misdirects attention (Daft, 2015). Frontline staff and middle managers may be more interested in protecting themselves from blame or from annoying directives than in full communication (Tucker and Edmondson, 2003; Detert and Edmondson, 2011), which means that those who have the decision rights may not completely understand the problem. Relatedly, hierarchy creates tensions between control and autonomy; local groups resist directives to pursue organizational goals that go against their own interests (Burawoy, 1979; Contu and Willmott, 2003; Vallas, 2003; Kunda, 2009). But hierarchy also involves roles with formally defined obligations, which could be leveraged in a change initiative.

Hierarchy and formally defined obligations. A different characterization of hierarchy highlights how it might be used to support learning and change. Weber (1920: 6) introduced the idea that in organizations, authority is granted on legal or rational grounds (rather than traditional or personal grounds), and suggested that rational authority is defined by "a specified sphere of competence which involves (a) a sphere of obligation to perform functions which have been marked off as part of a systematic division of labor and (b) the provision

of the necessary authority to carry out these functions.” This characterization of rationalized authority indicates that formal authority comes with formal obligations to account for work in a particular area. Simon (1945: 136) elaborated this point, arguing that formal hierarchy “would be unthinkable without the corresponding notion of a mechanism whereby that hierarchy is held to account.” These and later scholars characterized the nature of rationalized authority and how it relates to organizational decision making (March and Simon, 1958), coordination (Chandler, 1977; Adler, 2001), coalitions (Cyert and March, 1963), and structures (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Thompson, 1967; Blau, 1968).

Many previous studies have focused on the effects of social hierarchy and layered decision rights on learning but did not directly consider the effects of formal obligations on learning. On one hand, formal obligations may often perpetuate the status quo, as managers use their authority to administer their spheres of obligation in similar ways day after day. Having to account for their obligations would likely focus their attention on particular issues to the exclusion of others (Ocasio, 1997). But on the other hand, those obligations are formally and systematically defined, which suggests they could also be formally renegotiated in ways that develop new understanding and improved activities. And as the formal obligations change, managers might use their authority to administer new resources and expectations in ways that favor learning and change. I explore these ideas in an inductive analysis of organizational learning at an academic cancer center.

METHODS

Research Setting and Site

Cancer care is an especially complicated organizational problem, so it is an opportune setting for studying learning processes that involve many groups. Cancer encompasses a complex and varied set of diseases, and cancer care organizations are similarly complex, with many specialties involved in diagnostic and therapeutic care, including radiology, pathology, surgery, medical and radiation oncology, and oncology nursing (Junor, Hole, and Gillis, 1994; Fleissig et al., 2006; Jacobson, 2010; Meguid et al., 2015). Patients also need help with symptom management, nutrition, finances, disability support, geriatric support, and housing support during treatment, and many cancer care organizations offer these services (Bernabei et al., 1998; Hurria et al., 2007; Buzaglo et al., 2014; Del Ferraro et al., 2014). In 2013, the Institute of Medicine published a report showing that the U.S. cancer care delivery system is “in crisis due to a growing demand for cancer care, increasing complexity of treatment, and quality problems in patient experience” (<https://www.nap.edu/catalog/18359/delivering-high-quality-cancer-carecharting-a-new-course-for>). The report concluded that “changes across the board are urgently needed to improve the quality of cancer care.” Many cancer care organizations responded by undertaking initiatives to learn to provide a better patient experience (Haggstrom and Doebbeling, 2011; Adesoye, Greenberg, and Neuman, 2016). The research site for this study was one such center: “University Cancer Center” or UCC, which was divided into clinics defined by cancer type. These clinics operated in the same building as a large infusion center, where chemotherapy was

administered, a radiology suite, a radiation therapy center, an outpatient surgery center, and ancillary services.

Dual authority structure: Medical and operational hierarchy. UCC was part of a hospital system connected with a university medical school. Like many such systems, it was organized as a dual-authority structure, with the physicians set up in one hierarchical authority structure and the other employees organized into another. The physicians were employed by the university medical school rather than the hospital. They “reported up” to the medical school dean in the sense that he had hiring and firing rights, but that authority was fairly far removed. The doctors regulated themselves through training and socialization (e.g., Abbott, 1988). The UCC medical director had informal authority but could not hire, fire, or dictate practice. The other employees at the cancer center “reported up” in an operations hierarchy headed by a senior hospital administrator. Each clinical area was headed by a department manager. Typically, these managers had previously held nursing positions, though sometimes they were professional managers with business degrees. There were also many administrative groups (e.g., business services, insurance authorization), as well as information technology (IT) groups, each overseen by a professional manager. UCC was a classic bureaucracy: the managers had formalized authority rights for hiring, firing, overseeing practice, disciplining people, and structuring resources. The operational and medical hierarchies were parallel: an operational and medical leader oversaw each service. Figure A1 in the Online Appendix (<http://journals.sagepub.com/doi/suppl/10.1177/0001839217718547>) illustrates UCC’s dual-authority structure.

Daily operations at UCC. The work of UCC’s operational groups was described by informants as individual “heroics.” The nurses and administrators faced a steady stream of idiosyncratic problems and pivoted from one to the next, improvising, networking, and developing workarounds to resolve them. Their heroics were well-intentioned and skillfully executed in any given moment, but in aggregate they left the staff overwhelmed. People ate lunch on the run, at their desks, or on the drive home. In the clinics, the daily onslaught of problems arose in part simply because of the complexity of cancer and cancer treatment. Each new patient arrived with a terrifying and time-critical diagnosis, and each had a unique medical history, insurance situation, and personal life that influenced their care. Cancer is complicated to diagnose, so patients came with multiple scans and tests from outside physicians, all of which had to be read into the UCC system before the patient could be seen. “Prepping for clinic”—getting all of that information ready for the day’s appointments—was the source of near daily crises. Tucker and Edmondson (2003) have documented similar heroics in other health care settings.

Consulting at UCC. The formal organizational learning process that I studied was overseen by staff consultants who were assigned to UCC specifically to lead learning initiatives focused on high-level organizational goals and who collaborated with all of the groups affected by each goal. The consultants were professionals, often with advanced management degrees, who had off-site

office suites and worked in teams. They were hired by senior managers, who gave them the high-level goals and held weekly meetings to evaluate progress toward them. The consultants had implicit endorsement from senior managers but no decision-making authority; their role was intended to be advisory. Their work involved facilitating the learning initiatives, which meant gathering, synthesizing, and presenting information; organizing and facilitating meetings; and documenting decisions and helping managers carry them out.

Two learning initiatives. I gathered data from two learning initiatives at UCC. The first, referred to as "Admin," was intended to help more patients get appointments with UCC's doctors and to get them sooner. This goal required improving the efficiency and effectiveness of the clinic administrators, who gathered medical records, scheduled appointments, and oversaw the other administrative details of care. The high-level plan was to redesign three administrative roles—the new patient coordinators, the surgery schedulers, and the clinical administrative assistants—and cross-train them on each other's work and co-locate them as a work "cell." The hope was that this design would "level-load" the work, meaning that any administrative worker could do any administrative task so no one would be idle. The second learning initiative, "Navigator," was intended to streamline administrative work to better serve patients. UCC's navigators were nurses, but the role they played was largely administrative, involving appointment scheduling, insurance authorization, and disability paperwork. The goal was for the navigators to proactively help patients coordinate the logistics of their care.

Research Design

UCC consultants led many learning initiatives each year. I selected the Navigator initiative for study because it aimed at improving coordination in a complex system; this was theoretical sampling on the dimension of organizational complexity (Strauss and Corbin, 1990; Pratt, 2009). I then selected the Admin initiative as a matched comparison case. This choice was theoretical case sampling with the intent to find a case to match the Navigator initiative as closely as possible on dimensions that mattered for organizational learning (Strauss and Corbin, 1990; Pratt, 2009). The Admin learning initiative was similarly complex and aimed at redesigning the administrative roles. Both initiatives unfolded in the same cancer center, were funded by the same donors, had baseline support from both operational and physician leadership, were run by teams of consultants, and required change in the practices and interdependencies of multiple operational groups. Although the initiatives were closely matched, the eventual designs were endogenous to the change process.

Data. Data collection involved ethnographic observation of the two learning initiatives. My formal data collection in the Navigator initiative lasted 18 months, and in the Admin initiative it lasted nine months. I spent between 10 and 30 hours a week on site, observing meetings and clinical operations and shadowing the project leads, managers, and frontline staff. My main point of engagement at UCC during this period was with the two consultant teams. I followed them as they interacted with many operational and clinical groups. I

also spent time with the groups that were working to adopt new practices when the consultants were not present. I engaged as a helpful participant observer (Schein, 1993) in the sense that any time I could help the initiatives succeed, whether by offering my own thoughts or by helping with observations or data analysis, I would. In general, the relationship between me and the people at UCC played out with me as a historian documenting their important work. We would often joke about this process; people would pass me details saying, "You'll want this for your book." Research assistants helped observe and take notes on meetings and clinic observations. They typed transcripts in real time and added details the same day. By the end of the data collection, I had accumulated over 800 pages of field notes, transcripts, and archival materials.

Analytic approach. I used NVivo software to store, organize, and analyze the data. Formal coding followed a grounded theory approach, with three rounds of formal data analysis. I first conducted open coding, meaning no particular themes guided the coding. This first coding analysis was focused on thematic salience (Glaser and Strauss, 1967; Pratt, 2009), and two main categories of codes emerged: (1) "interfaces," with subcodes that included "process and operations" and "plans and situated action," and (2) "process," which included many subcodes, such as "managing concerns" and "selling the vision." The second round of analysis involved more-selective coding, distilling the open codes into core variables and major patterns. This round of coding was focused on the representativeness of the patterns and resulted in a more detailed description of the learning process, including activities like "connecting the dots" and "making a new plan." Finally, a third round of analysis focused specifically on coding which doctors and managers were involved in every interaction and what they did during each interaction. This final analysis focused on how representative interaction patterns were, and it documented the specific differences in how the consultant teams interacted with the managers and in how those interaction patterns helped (or did not help) integrate the consultants' and managers' understanding. This coding process involved every piece of data, and the examples I share here are representative of the entire data set.

RESULTS

The initiatives I studied began similarly, but their processes diverged: one resulted in observable changes in the work practices of several operational groups and in the interdependencies between those groups, and the other ended with little evidence of changes in the groups' work practices. The more successful initiative was organized around a particular process wherein relevant managers were asked to formally commit to be accountable for new production or new performance expectations. I conceptualize that process as "renegotiating spheres of obligations."

Initial Similarities in Learning Initiatives

The Admin and Navigator initiatives were similarly structured when they began. Both were run by teams of staff consultants who had public endorsements from senior managers and physicians for their work. UCC provided a standard

set of project organizing tools that both teams of consultants used, including a standard template for meeting agendas, project plans, calendaring and e-mail communication tools, and instructions on which operational and physician leaders should be invited to different kinds of meetings.

Both initiatives began with a formal kickoff meeting followed by weekly planning meetings. Many leaders and staff attended the kickoff meetings, which were conducted as celebratory enthusiasm-building events. The kickoff meetings focused on how the initiatives would help UCC “improve for our patients!” and were also attended by patient representatives who shared stories about difficulties they had experienced during their cancer treatment. At the end of the kickoff meeting for the Admin initiative, one of the senior operational leaders asked everyone in the crowded room to say in one word how they felt, prompting replies such as “excited,” “inspired,” “determined,” and “anxious.” In both initiatives, there was a collective sense of wanting to make hard changes to better help patients and their families as they went through the difficult experience of dealing with a cancer diagnosis. During the kickoff meetings and in informal discussions with people after, questions were raised about how the new goals and programs would be accomplished, but few questions or concerns were raised about whether they were the right goals to pursue. In the weeks after kickoff, there continued to be strong buy-in for the initiatives, evidenced by regular attendance and participation by intended participants at weekly meetings.

Divergent Outcomes for the Learning Initiatives

Despite the similar goals, standard structures, and broad baseline support for both initiatives, their processes and outcomes diverged. Only the Admin initiative achieved the new goals by improving the work practices of multiple groups and changing their interdependencies. At the end of my data collection, four months after the Admin initiative formally launched, two admin cells had been created, each with six administrators co-located in a shared space with a new shared work queue and new work practices. Several interdependent groups had also changed their work, as I detail below. The admins tracked new performance metrics and huddled with their managers every morning to discuss their work queues and performance metrics. One of the main goals of the Admin initiative was for new patients to get appointments earlier, which is critical for patients diagnosed with cancer. The metric used for tracking this goal was “% of patients scheduled within 1 business day of referral.” The baseline rate was 68 percent, and the new goal was 80 percent. By the fourth month, the admin cells were regularly reporting weekly rates higher than 90 percent. Staff members were able to keep the work queues low, with patient issues and staff messages resolved within 24 hours. The work of implementing and improving the cells was still ongoing when data collection ended; only one of the cells had started to cross-train the roles. But the managers and doctors had formally committed to the cells, which shaped how they staffed and resourced their areas.

In contrast, by the end of the study, the Navigator initiative had not changed any work practices in any intended group, nor had it changed their interdependencies. This initiative had a soft launch and an official launch, and I collected data for ten months and four months after each of these events, respectively.

The navigators were shadowed (a common practice at academic medical centers) for three months early in the initiative and then for two weeks after the soft launch and four weeks after the official launch. This observation work provided evidence for whether the navigators' work practices had changed in support of the new goals; the initiative had not developed processes for collecting performance metrics. Before the launch, the navigators spent the majority of their time following up on insurance authorization, doing "clinic prep" work (gathering and organizing records, scans, and faxes), and responding to patients' issues that were tracked in a customer relationship management (CRM) system. After the launch, their daily activities were much the same. I found no evidence of the new practices that the consultants had designed.

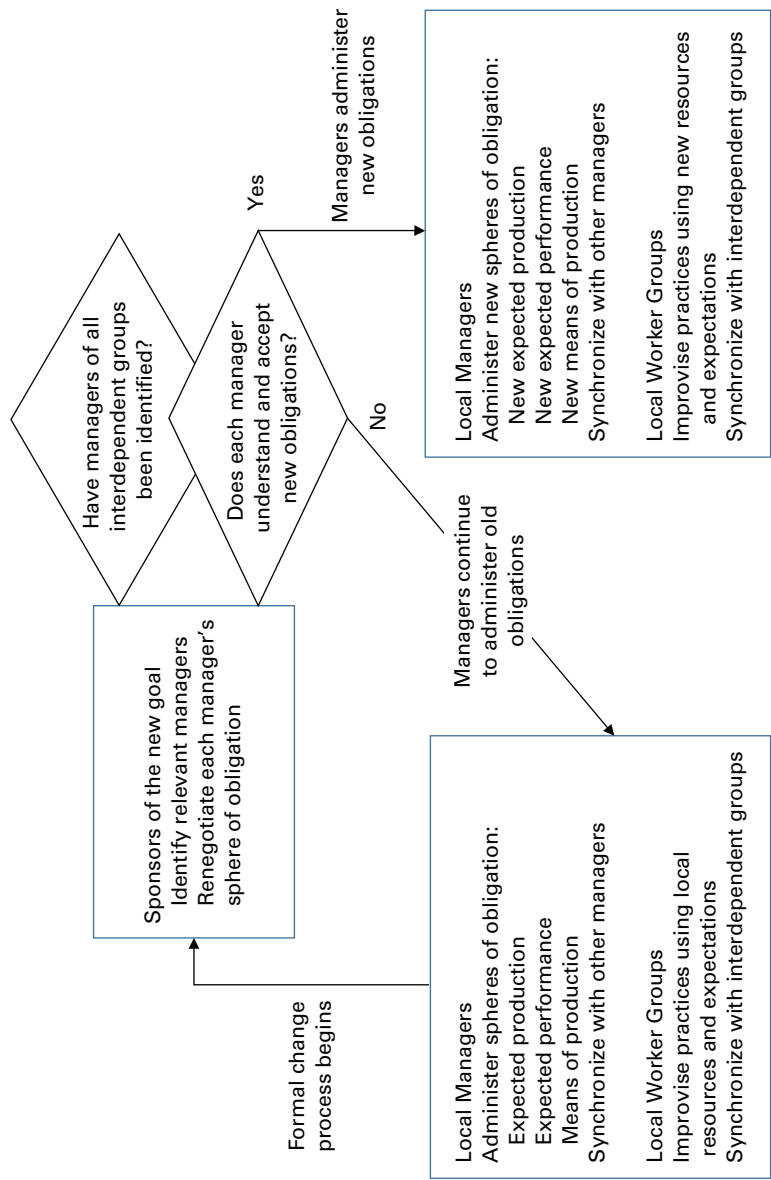
Different Interactions with Hierarchy

The main difference in how the two initiatives unfolded was in how the consultants used the existing hierarchy. In the Admin initiative, the consultants worked to discover who was responsible for any decision that needed to be made, and they asked that manager or doctor to formally make and commit to a decision. Before they would commit, the managers and doctors pushed back and reshaped what was asked of them. Through these interactions, both the managers and the consultants came to better understand the goals and proposed changes. In contrast, during the Navigator initiative, the consultants asked managers and doctors for ideas and feedback but did not ask them to make formal decisions or commitments. Without the pushback and renegotiation process, the different understandings of the consultants and managers did not merge, with consequences for how the managers administered their ongoing obligations. These diverging processes are illustrated in figure 1, which shows the interactions of consultants, managers, and doctors, and outlines the paths to renegotiating spheres of obligation, as the Admin consultants did, or to continuing the old obligations, as the Navigator consultants did.

Admin Consultants' Interactions with Managers and Doctors

The Admin consultants' goal was for the managers and doctors to make all the decisions and be held accountable for the decisions they made, evoking their formal spheres of authority and obligation. The consultants identified the decision makers for any group relevant to their goal (a process they called "connecting the dots"), asked them to make the necessary decisions, and held them accountable for their decisions. This pattern was evident in planning meetings with the managers and doctors and in the written follow-up documentation. The Admin team leader would frequently pause during the meetings, list the names of the specific people who were making decisions, and ask them, "Are you happy?" to confirm their commitment. The managers and doctors became accustomed to such formalized interactions and would sometimes preempt them to tease the consultants. For example, the lead consultant always said how much time was left in a meeting and how many decisions remained. During a particularly busy meeting, one of the doctors joked, "Well, we've got three minutes left. I'll make all the decisions now!" The consultants displayed a poster in the planning room to remind managers and doctors of their importance to the initiative; it said, "Remember: YOU are the experts."

Figure 1. Different interactions with hierarchy, outlining path to renegotiating spheres of obligation in organizational learning.



The consultants also ensured that these decisions and commitments were formally documented, which exemplifies Weber's (1920: 7) characterization that administering spheres of obligation involves every administrative act being "formulated and recorded in writing." The consultants deferred to the managers in the meetings and then immediately followed up by recording their decisions and commitments, thereby obligating the managers to what they had said. This follow-up included creating and distributing via e-mail meeting minutes with separate sections detailing the decisions each manager and doctor had made. The follow-up documents included bullets with the managers' names bolded next to action items to which they had committed. Here is a representative example:

ACTION ITEMS

- [Manager 1] and [consultant 1] will work on the data collection for the templates.
- [Manager 2] and [staff member 1] to create a detailed communication plan.
- [Consultant 2] to plan logistics for training with [Manager 2] and [Manager 3].
- [Doctor 1] to ask Process Owners if they can make the workshop next Thursday.

This interaction pattern was effortful and deliberate. The Admin consultants spent significant time in their own group meetings strategizing how to stage effective interactions with managers and doctors, whom they referred to as the "process owners." The consultants frequently reminded each other not to step into actually making decisions, which was a struggle because they had both more time and more familiarity with the initiative than the managers or doctors. They also had set goals and values for how the initiative would unfold. There was constant behind-the-scenes strategizing about how to engage the formal authorities for any group. For example, the consultants had to decide at what point to engage the managers, as illustrated in the following discussion during a team meeting:

Consultant 1: Should we give [an operational group] a heads up and bring them in?

Consultant 2: It'd be good if we could, but only if we have something to show.

Consultant 3: We should bring them in, especially as we're designing their space without them being here.

This discussion reveals a tension: there were meetings in which the managers were brought in too early (i.e., without "something to show"), and discussions diverged from the specific goal. But if managers were brought in too late, they sometimes found the new plan unrealistic or threatening.

Navigator Consultants' Interactions with Managers and Doctors

In contrast, the Navigator consultants did not ask the managers and doctors to make formal decisions or commitments; they engaged them as stakeholders who could help shape values. This pattern was evident in planning meetings and follow-up documentation. During the weekly planning meetings with the managers and doctors, the consultants asked them for conceptual feedback but did not ask them to make formal decisions or to commit to any action items. For example, the consultants made an Excel worksheet of over 100 activities that a navigator could potentially do, such as "Serve as a main point

Table 1. Evidence for Different Interactions with Hierarchy in Admin and Navigator Initiatives

	Admin	Navigator
Examples from strategy meetings	<p>Two Admin consultants strategize what to talk about in the next planning meeting:</p> <p>Consultant 1: We could say that we need more information. This [decision] should be owned by [the managers], so we just bring it to them as the key decision makers.</p> <p>Consultant 2: Right so we can gather data, but I'm thinking about batching the decisions. We can't flood the decision makers with every request.</p>	<p>Navigator consultants strategize what to talk about in the next planning meeting:</p> <p>Consultant 1: I like this new model we made where things are either labeled as planned or unplanned . . . it seems very elegant. Not so many dimensions.</p> <p>Consultant 2: It hangs together nicely.</p> <p>Consultant 1: We'll present our model.</p>
Examples from consultants' reflections	<p>Admin consultant during an interview: "We are working on the [IT build] for [this particular doctor]. . . . IT kept asking me for decisions. . . . I finally recommended that the IT team should actually go to his clinic and talk with him to get the information that they need. That is always our standard—you have the right person decide. They were going through me but I shouldn't be doing that because then they won't learn."</p>	<p>Navigator consultant during an interview: "If I were [Manager 1], I would be uncomfortable with how much I have inserted myself here! I am regularly meeting with [the navigators] without her and coaching them on what to do. [Manager 1] is not going to know what's going on or how to follow up."</p>
Examples from follow-up documentation after meeting	<p>Admin follow-up documentation:</p> <p><u>DECISIONS</u></p> <ul style="list-style-type: none">• Next week, [Manager], [Manager], [Doctor], and [Doctor] will go to two huddles. This should bring people together and show that leadership is aware and involved.• [Manager] will put the bullet points together.• [Local manager] and [local manager] fully support this plan.	<p>Navigator follow-up documentation:</p> <p><u>ACTION ITEMS</u></p> <ul style="list-style-type: none">• Process measures for new standard work [Consultant 1, Consultant 2]• Communication to housewide leaders regarding launch [Senior Manager]• Submit request for hiring an additional navigator [Consultant 3]• Model Navigator workload at 90% capacity [Consultant 4]• Develop standard work for interacting with current patients [Consultant 1]

of contact for patients and their families” or “Track patient progress and keep other care team members apprised, as needed.” The consultants led the group through weeks of discussions about the relative priority of these activities but did not ask anyone to make formal decisions or commitments. The main agenda item for another meeting was, “Open Discussion: ‘What is our definition of multi-disciplinary care at [UCC]?’” Later, the consultants asked for feedback on new concepts such as whether the navigator should be considered “pitching” (proactive) or “catching” (reactive). The managers and doctors actively engaged in these conceptual conversations, but no one made specific decisions about what exactly a manager or navigator would do differently after the launch. The follow-up documentation reflects that because specific decisions were not made, the consultants took most action items. An example of their follow-up documentation is shown in table 1, which reports evidence of the different interactions with hierarchy. Compared with the follow-up e-mails sent by the Admin consultants, the

example shows that the managers were not asked to do much of the deciding and planning.

While the meetings with managers were spent prioritizing values, the Navigator consultants made specific decisions about the design of new processes during their own internal planning meetings. For example, in one meeting, the consultants discussed who should define the performance metrics for the navigators:

Consultant lead: Who else should do it? [i.e., define the metrics]

Consultant 3: How about [Manager 1] and [Manager 2]?

Consultant lead: That's like going to the grocery store and asking people about navigators. They don't know. We did the standard work . . . we know it, no one else does—I don't want a year's work to be on the shelf. I want to keep the integrity of the work.

Later, weeks before the new plan was supposed to roll out, the consultants were looking at RSVPs for the meeting. The navigators' direct supervisors were going to be there but not the senior administrators. The team lead said, "[Manager 1] and [Manager 2]? I am not seeing that group. Let's cancel. I do not think they are the right people to have in the room." She clarified that she wanted high-level leaders to attend who could broadly champion values, but saw little reason to engage with the navigators' direct managers. This pattern of focusing on high-level values shaped how the Navigator plans were made and implemented.

Admin Managers and Consultants Renegotiate Spheres of Obligation

As the Admin consultants constantly asked the managers and doctors to make decisions and commitments related to their respective spheres of obligation, the managers and doctors pushed back or said no, and they eventually committed to reshaped plans. Through these interactions, the managers and consultants came to better understand the current state of operations and how to achieve the new goal. The plans became more feasible and were better understood, and everyone better anticipated and coordinated interdependencies.

Managers renegotiate expected production and performance. When acting as authorities who would be accountable for new obligations in their respective groups, the managers began asking specific questions to understand what exactly they would be accountable for, and they said no when something was infeasible. These interactions reshaped the consultants' plans. For example, at an early planning meeting for the Admin initiative, the consultants presented a draft plan, and several managers spoke up with feedback. One said, "I think there's a question of the integrity of this administrative work team. It sounds like you are setting up an implicit divide between administrative and clinical, but very often that divide is gray. So you're going to need a very warm hand-off between [the admin and clinical] teams." Partly as a result of this discussion, the Admin plan evolved to include a nurse in the new admin cell to help with issues that required clinical expertise. A similar adjustment was made to overcome one of the major obstacles in the Admin initiative: finding space in the two clinics for the admins to sit together. According to the early plan, all the admins needed to sit together so they could share their work

queues, but they also needed to interact with patients during check-in and check-out. One of the managers said she did not want to make the decision to move the admins into the new space until she was sure the space would ensure patients' comfort and right to privacy. A discussion from a planning meeting illustrates this manager holding off on a decision until her concerns are resolved:

Consultant: We have 20 minutes. We need to make some decisions on stations and check-in and check-outs.

Senior Manager: What's our progress?

Consultant: We are trying to get a sense of feasibility for August.

Manager: I want to see the room again. . . . I need to go look at it. I don't want to rush a decision that has such a large impact on our families.

In a later meeting, after she had looked at the space, the manager said she felt that it was feasible to use the planned space, with white noise machines to provide needed privacy to the patients.

The managers' negotiations also helped the consultants and senior managers understand the staffing and training implications of the new plans. One manager felt this was an area in which the consultants did not have the operational experience to understand the practical implications of what they were suggesting. She reflected on this in an interview:

I'm not sure they [the consultants] get what it takes for people to learn [administrative work]. It takes new hires two to three months to get comfortable with their position, and that's doing it 40 hours a week. Here we are having them do their regular job, and then training them on all those new skills a bit here and there. There is no way that could happen in a short time. Maybe some people can learn all those things in six months, but most people—it could take them a good year or two to learn all of those skills.

During planning meetings, she and another manager helped the consultants revise their plan for cross-training the admins. Instead of trying to accomplish cross-training in a three-day workshop, the managers suggested that cross-training could unfold over several months. In response to this feedback, the group decided to go forward with a launch that included co-locating the administrators and giving them shared performance metrics, but they loosened expectations of when cross-training would be completed. When asked to formally commit to new obligations, the managers imagined what they would require and pushed back to make the new obligations more feasible.

Managers synchronize interdependencies during the renegotiation process. The Admin managers also helped the consultants understand how to synchronize with the other groups that would be affected by planned changes. During meetings and through their own investigations, the consultants discovered some of the interdependent groups that would be affected. They then asked the managers of these groups to make decisions and commitments related to their own spheres of obligation.

The infusion center (IC), where patients received chemotherapy, was interdependent with the clinic admins. The IC manager agreed to changes in her

group that would support the admin cells. Chemotherapy treatment requires many appointments over many months, and the timing of the appointments is detailed and important. The IC was a busy and expensive resource and had its own dedicated schedulers who had become highly specialized in this skill set. The consultants and clinic managers wanted one of the new admin cells to do the scheduling for patients' upcoming chemotherapy treatments. The IC director and IC scheduling manager were concerned about newly cross-trained admins scheduling directly into their center. A conversation during a planning meeting illustrates how the managers negotiated the practice changes:

Infusion Manager: This is going to sound snotty, but we have spent years getting standard work that works. I'd be very concerned with two separate processes [i.e., admin cell and the IC both doing infusion scheduling]. Should be just one place. In the cell or in the IC.

Clinic Manager: OK but tell me if what I'm saying is wrong. . . . I'm sitting in the admin cell and the patient leaves . . . and then the appointments that need to be scheduled is going to your team and they work it? That violates the plan's principles of accountability and closure.

Infusion Manager: Well . . . if *our* schedule is what is at stake here, we are in a jam if we aren't involved in the scheduling.

This conversation was conducted in a collaborative and friendly tone. After many such conversations during many such meetings, the infusion director made it clear that she supported the plan for this admin cell to schedule upcoming chemotherapy appointments and would help work toward it, but she wanted to wait to give final approval until she was sure its staff members were adequately trained on the IC standard scheduling work.

Another feature of the Admin initiative that required extensive synchronizing between the clinic groups and other groups was figuring out how to co-locate the admins. Several managers were involved. The facilities managers helped the other managers and consultants understand the regulations that had to be adhered to in their plans, as illustrated by this interaction:

Consultant Lead: [*pointing to screen*] We're solving for this and this. Two patient spots for check-in/check-out. We need to find five to six patient spots.

Doctor: [*pointing to screen*] Can they face each other in the alcove?

Facilities Manager: Dimension-wise it's too much. It goes into the door. We need egress [the ability for anyone to safely exit a space]. So we can't do that.

They eventually found a space that they thought would work for all groups and all regulations, and the facilities manager committed to the action item to "make a mock-up" of the new floor plans to see if the power outlet positioning would work. She helped accommodate regulations related to fire exits, sprinklers, disability access, staff ergonomics, and patient privacy, and she also helped synchronize planning with IT groups.

Managers of other interdependent groups determined that their groups' practices would not need to change. For example, the authorization department had recently undergone a hospital-wide improvement project that centralized the authorization processes and was not able to change its work. The original admin cell idea had included a dedicated authorizing agent, but the consultants had to change this plan. Still, the authorization manager attended several

day-long planning workshops to help craft the admin cell work to most effectively interface with her group. She also held a training session with both admin cells to teach them what information to send to her group and how to follow up most effectively. The operating room and radiology department managers also decided that the two admin cells would continue to interface with their group schedulers but would not directly schedule into their departments.

The medical records manager also thought the best plan would be for her group to maintain its practices, but she helped both admin cells interface with her group. During a planning workshop, the consultants, admins, and various managers discussed how the admins could collect external medical records in fewer than 72 hours to support patients getting appointments faster. They discussed one of the main problems the staff encountered, which was getting the records from other hospitals. The medical records manager offered to help:

Admin: [*frustrated, to her manager*] So in conclusion, we will “do the very best we can” . . . but really we are not going to beat this [three-day] deadline. Because at [other hospital] they always say things like they will give us those records “over our dead body” or they give us blank CDs. They won’t even talk to us until we get [a form] signed.

Records Manager: I will follow up with the records managers at these other facilities. That is unacceptable. I can help with the records. I have those relationships.

Synchronizing with this manager during the planning process meant that she helped address this issue in ways that consultants and other managers could not. Figure A2 in the Online Appendix illustrates the network of managers and doctors who made decisions and commitments during the Admin learning initiative.

Navigator Managers and Consultants Do Not Renegotiate Spheres of Obligation

Because the Navigator consultants did not ask the managers and doctors to formally commit to new obligations—managers and doctors gave conceptual feedback rather than making decisions and commitments—their understanding of the local practice was not integrated into the plans, which remained abstract. The managers did not fully understand or feel ownership for the plans, which did not anticipate changes to between-group interdependencies.

Managers do not renegotiate expected production and performance. To make plans for a newly designed navigator role, the Navigator consultants did extensive literature reviews in the health services research literature, interviewed patients, attended design-thinking workshops, and constantly conceptualized new ways of thinking about the problem. They documented their learnings in PowerPoint slides, and at meetings they asked the managers and doctors to give value feedback rather than make decisions and commitments. For example, they asked, “What does multidisciplinary care mean?” rather than “Will your navigators make an intake phone call to each patient?” In response to the conceptual questions, the doctors would talk about studies they had read or ideas seen at other hospitals, or they would share stories about specific patients they were treating. The senior managers and doctors would discuss the relative priority of

different values. The local managers spoke much less in response to these kinds of questions. From the other initiative, I saw that if managers were asked to commit to be accountable for the phone calls, they would have responded with questions of their own: "How long will the calls take? Where will they be conducted? What if patients are coming only for a second opinion, will they still get these calls? How will the system know the difference?"

During meetings, the managers and doctors sometimes pressed to understand the specific implementation of these high-level goals, and the consultants deferred answering, saying that it was "an iterative design process," implying that the specifics would be figured out over time. As an example, a clinic manager asked how the IT system would need to change if one navigator was a patient's main point of contact. The consultant lead responded that she did not have an answer to that, but it was worth thinking about. After months of providing conceptual feedback, the managers and doctors had bought into the vision but did not concretely understand the intended new work practices.

Several major crises arose during this initiative. A pilot launch was planned with two navigators in their modified roles, but two weeks before the launch, the senior manager got concerned e-mails from two doctors asking what their navigators would be doing after the change. The senior manager promised to clarify whether their concerns reflected actual planned changes. During an intense meeting, the consultants realized that they could not tell him how the abstract planned changes related to the doctors' concerns. They decided to move back the roll-out. Then, a few weeks before the full launch, people across UCC started asking again what specifically was supposed to happen. Several questions about feasibility arose at that point. Managers and doctors wanted to understand how many patients each navigator could service with these newly designed processes, and doctors wanted to understand who was supposed to help them coordinate their patients if the navigators were doing additional patient-facing work. The consultants and senior leaders decided to still hold an official launch, intending to iteratively figure out the right design for this role after the launch.

Managers do not synchronize interdependencies with other managers. Without the renegotiation process, the Navigator consultants anticipated fewer interdependencies than the Admin consultants. Both initiatives began with the same small group of managers and doctors, but the Admin initiative engaged with many more interdependent managers over time, while the Navigator initiative continued to engage with a small group of managers throughout the planning. Figure A2 in the Online Appendix illustrates the contrast.

During the Navigator planning, sometimes interdependencies were noted, but the relevant authorities were not engaged. For example, during a planning meeting toward the beginning of the initiative, a senior manager said, "Have we forgotten the social worker in this drama?" One of the doctors concurred, "Yeah . . . seems like the social workers do a lot of this work already." But there was no follow-up with the social workers' manager to verify whether their work would be redundant with what was being planned. Rather than meeting with the social workers' manager, who could have negotiated how the two roles related, the consultants themselves made a grid that listed high-level activities (e.g., coordinate patient care) and indicated which role was

Table 2. Renegotiating Spheres of Obligation (Admin) vs. Conceptual Feedback (Navigator)

Admin	Navigator
Examples of managers renegotiating new spheres of obligation or giving conceptual feedback	
<p>Clinic manager: If we go live with 5 admins to do this (task), that leaves only 3 of them doing (calls) . . . doesn't work.</p> <p>Consultant 1: What if urgent calls get routed to them?</p> <p>Clinic manager: I mean . . . we don't separate our calls right now. I want the cell because we don't have the staff to handle all the calls.</p> <p>Senior manager: Sounds like you need another person. . . . Is this a design flaw? <i>[pauses]</i>. . . . So we need an RN?</p> <p>Clinic manager: This is an additional RN? Or the one we recently added?</p> <p>Consultant: Oh. OK, great. An RN for the cell but we don't need to hire another one.</p> <p>Clinic manager: Yeah that works.</p>	<p>Interaction from a planning meeting about 7 months into the initiative:</p> <p>Consultant: I have a process suggestion: let's just focus on principles right now. Offline we'll take a look at it, and we will re-tweak it to fit those principles. [Consultant], [Navigator 1], and [Navigator 2] can look into the specifics then.</p> <p><i>[People nod or shrug in response.]</i></p>
Example of managers synchronizing, or not, interdependences with other managers	
<p>Interaction from a planning meeting:</p> <p>Senior Manager: [Manager in charge of clinics and palliative care], we volunteered you for an action item, see if we can move palliative care into the medical records room and use their space.</p> <p>Manager: Not happening.</p> <p>Senior Manager: Why not?</p> <p>Manager: Because they need to see patients in the clinic there. We have to find another space</p> <p>Consultant: How about [this other palliative care work room]?</p> <p>Manager: No. Another room is best.</p>	<p>Interaction from a planning meeting about 1 month before the formal launch:</p> <p>Senior Manager: It seems like we still haven't actually aligned on whether this will work with Radiation Oncology—and how.</p> <p>Consultant: Very early on we met with [Doctor] and [Manager], had a very constructive conversation about the model. They're totally on board.</p> <p><i>[Radiation Oncology manager and doctors later said they did not understand what the model was.]</i></p>

responsible for those activities. As another example, the consultants presented slides that listed these questions:

- How will Call Center navigators find appropriate back-up resources?
- Will there be hand-offs and an inter-relationship?
- How will navigators coordinate with social workers?
- Who coordinates insurance authorization?

This slide seems like the beginning of “connecting the dots” (i.e., identifying the formal owner of any decision that needed to be made), but the managers of the groups that would ultimately have to answer these questions were not engaged. Later, a new consultant was brought in to help. She said, “It looks like these consultants have created standard work . . . like a page that says ‘Make this phone call’ . . . but they are not at all sure how it affects everything else.” Table 2 reports additional data on these themes.

Admin Authorities Collectively Administer New Spheres of Obligation

After months of planning meetings with managers and doctors, as well as training workshops with the managers, doctors, and staff, the Admin initiative had

an official launch, and the managers began to administer their new spheres of obligation. They administered space and equipment in ways aligned with new obligations, and they coached and trained staff on new ways of working. During this phase, the managers continued to meet with the consultants and other managers, but their focus turned to helping their local groups develop the new practices.

Managers administer new expectations and resources. The groups of admins moved into their new spaces and began to work. The managers had actively participated in making the new plans, so they understood their intent and could help coach the staff members and adapt plans in real time. I rarely saw the managers or staff refer to the initiative's detailed documentation after the launch (the staff joked about the huge binders), but the managers were able to translate abstract plans into practice.

One way the managers administered new spheres of obligation was by training the staff on new expectations. They held daily huddles in which they celebrated successes and discussed expectations. The staff reported progress, and the managers would often cheer or congratulate them. During a huddle, one manager said, "You guys are looking good today . . . [*she listed performance on new measures*] . . . very good!" At another huddle, a manager acknowledged difficulties: "When we're understaffed, we're not as good. But when we're fully staffed you guys are rocking it." During huddles, the managers would also talk through what was supposed to happen. A sample interaction from a huddle illustrates this process:

Manager: OK, so here's how you track. Every time you do a new patient task, you make a tally, then we tally at the end of the day for the group. How many [messages], how many patients. That helps staffing.

Admin lead: Does that include in-person requests too?

Manager: Yes, it gets routed to this pool.

Admin lead: So the call center is not doing it?

Manager: These requests come from nurses who are looking at a chart and want the patient to come back. Those things the call center doesn't know.

At these huddles, the managers also adapted plans to be more relevant to the staff's work. At one huddle a medical assistant asked a question about checking in and rooming a patient when the patient is very sick. The manager offered a suggestion for adapting the plan in this instance: "Maybe a scheduler can go to them? That is an option. . . . That's just common sense to me." Thus a decision was made that for a very sick patient, the scheduler could go to the patient's room. This decision altered the idealized choreography around patient flow (a consultant later noted the 400 extra feet the admins would regularly walk because of this decision), but the manager understood the intention of the plan and made a decision that made sense to her.

The managers also administered new obligations by hiring new people, training them, and arranging coverage for activities included in the new plan. Staffing the new plan also meant dealing with the different personalities, preferences, and skills of the staff in the local group. As an example, the success of each new cell depended on the admins working as a team. One manager expressed concern that certain members of her staff might not be a good fit

for this teamwork. Her group indeed struggled to get along. She and other managers brainstormed solutions and ended up adding another person to the cell who they thought had leadership skills.

The managers also administered space and tools in support of the new plan. In one of the clinics, the space redesign was almost brought to a halt because the group could not figure out where to move a large scale that was in the space designated for the cell. Finally, the manager announced at a huddle:

Manager: The scale is going to be moved toward [west] clinic.

Staff member: So the scale is gone?

Manager: Yes, the scale is gone.

Consultant: You guys will not believe the amount of work it took to move that scale! Thank [the manager] for help with that.

Staff member: [*Cheers the manager's name.*]

Another manager's to-do list after an implementation meeting further illustrates action items to administer resources to help the staff develop new practices:

- 1) give iPads to patients to answer surveys,
- 2) purchase blood pressure (BP) machines to meet 1:1 ratio of [staff] to BP machines,
- 3) purchase vital machines to connect to the electronic medical record,
- 4) identify a communication tool for admins

Synchronizing with other groups. As they administered their new obligations, the Admin managers also helped synchronize the changes to interdependencies between their respective groups. One of the main interdependencies that required extensive synchronizing was between the admin cells and the call center. The call center needed to route different calls to the admin cells and needed to use different scripts for directing patient calls there. The call center used an editable database that listed what they should say and do in response to different patient calls. But, as would be predicted by communities of practice literature (e.g., Brown and Duguid, 1991; Orr, 1996), even this routine administrative work was more complicated than this algorithmic database would suggest. The call center operators had to constantly make expert judgments, for example if a patient had other serious illnesses in addition to cancer or was not communicating clearly. One of the Admin consultants who observed at the call center told me, "One of the very experienced schedulers was working almost completely off of memory. She's not even looking at the [database and script] most of the time. That makes for a very efficient agent, but when the database changes, they don't know because they're not looking at it." For these reasons, the manager of the call center had to do a new training with her staff to explain how they were going to support the admin cells, rather than just loading a new template into their database. Still, even after both managers had trained their groups on the new interdependency and work, they had to troubleshoot the interface for months after the launch. The main problem was that there were misrouted calls to the admin cells. One of the Admin consultants described the ongoing troubleshooting required:

This interface only worked once [the manager] built her relationship with her counterpart in the call center. She called their manager and said, "What do you need from

me to help stop these misrouted calls?" She started describing misrouted calls to them on a daily basis—that made the change happen. It was literally, "Hey, we got this call at this time, this was the issue," and then on the call center's side, they go identify the specific agent, and give them real time "Hey . . . this is how this should work . . ." corrective training.

Through this process, the interdependency between these groups eventually changed and stabilized.

The second main interdependency that the managers synchronized after the launch was between the admin cells and the infusion center (IC). The admin cell managers continuously coordinated with the IC manager to balance the training of their respective staffs. Sometimes the admins from the cells would "go upstairs" and sit with the infusion schedulers to work, and sometimes the infusion schedulers "came down" to work in the admin cells. The managers communicated spontaneously and sometimes in meetings about how to cover the scheduling work while training new people to be able to do it.

Unexpected interdependencies also required real-time troubleshooting. For example, to support the admin cells, IT built a new referral functionality in the electronic medical record system. When IT deployed it, the new software code broke one of the administrators' main IT processes:

Admin 1: [*looking at her computer, dismayed*] Where did the referrals go?

Admin 2: [*looks at the problem*] No, that's not our fault. It's IT's!

Admin 1: I'm going to have to take at least an hour to re-attach the referrals! I'm calling [our manager].

Admin 2: Yeah call [Sue], tell her it's IT.

Admin 1: [*dials on her phone*] Hey [Sue], it's me. Can you come over to where I'm sitting?

The manager walked into the cell and discussed the problem with her team.

Admin 2: IT did a massive change. They changed all our appointments. And the referrals aren't there, they aren't attached like they're supposed to be.

Sue: What?? Can you show me what happened? [*admin shows her*] Who do we call here?

Admin 1: [*names an IT Manager.*]

Sue: OK. [*They assess the impact and realize 73 referrals were deleted*] . . . I'm sorry these things happen. They're reinstating the 8:15 call [where IT syncs with clinics]. I guess I will be bringing it up there too. Ha! Let me get my coffee. . . .

As another example, before launch, the admins who moved to one of the cells had previously "barcoded" any paperwork (i.e., insurance authorization, medical records) that was brought into their workspace, including paperwork for an adjacent clinical group. When they moved workspaces, no one realized that meant the paperwork brought to their old space would no longer have anyone to barcode and process it. Their manager explained what happened:

When our admins got in the new cell and forms came in, we just kept barcoding our stuff and doing what we were doing . . . but we were forgetting that we used to do everything that came into that other work room and some days it was barcoding for the other group's clinic, not ours. But now we were only barcoding what came into the cell. . . . The other group got way behind on paperwork, and it caused problems.

The assistant manager of the other group eventually realized what was happening and came to this manager to figure out together how to route all of the paperwork to the admin cell.

The managers were constantly fixing issues related to the changes, which usually meant dealing with interdependencies with other groups. A dynamic developed in which managers' staff members would cheer them on as they went to fix things. An interaction in one of the admin cells illustrates this dynamic. The manager, Jill, walked into the room carrying some samples.

Admin: "Um . . . I don't know what to do with these. . . ."

Jill: [*turning back around to leave*] "I'm going to send an e-mail to the nurses to say these patients have been seen and these samples should not be here. . . ."

Admin: [*laughing*] "Get them [Jill], go get them."

The Admin learning initiative was organized around managers making formal decisions and commitments to renegotiate their new spheres of obligation. Table 3 reports the historical and renegotiated spheres of obligation for some of the managers. For some managers, new obligations involved procuring and administering new means of production, such as hiring new staff or coaching new work practices. For others, like the IT group or the space planning group, the managers were committing only to building a new functionality, but they used their same staff and equipment to do so. This table illustrates how complicated it was to achieve a goal that depended on changes to the practices and interdependencies of so many groups.

Navigator Authorities Continue to Administer Old Spheres of Obligation

In contrast to the Admin managers, Navigator managers had little understanding or ownership of the initiative's plans, so they continued to administer their old spheres of obligation even after launch events that made it seem like something was supposed to change. Even though the various stakeholders had serious concerns with the initiative's progress, they wanted to launch it and try to improve it iteratively afterward. Table 4 provides some examples of the differences in the way Admin and Navigator administered spheres of obligation.

Authorities administer old expectations and resources. The planning process for the Navigator initiative had taken over a year. The consultants produced several large binders of standard work detailing how to modify the navigators' role in line with patients' needs. But when it came time to implement the plan, none of the operational leaders understood it or felt ownership of the designs. A senior manager was eventually tasked with introducing the new standard work to the groups in which the program was launching. Over and over in launch meetings, her message to the groups was that this new role was really not that different from the old role. Trying to manage people's concerns, she repeatedly said, "People, we need to calm down. This is not that different." A year's worth of transformative role design work was introduced by the manager—whom the staff knew and trusted—as "not that different." And for the most part, the groups did not change their work practices after these meetings.

Thus a new consultant took over the Navigator initiative several months after launch. She described the problems she encountered as stemming from a

Table 3. Examples of Renegotiated Spheres of Obligation in Admin Initiative

Historical sphere of obligation		Renegotiated sphere of obligation
Clinic Manager		
Means of production	5 admins with different roles Role-based processes Individual work stations and equipment	Cell of 5 cross-trained admins and a nurse New team-based processes New equipment and changed space: co-located work stations
Expected production	Responsible for administrative work of 1st clinic visit	Added responsibility for scheduling infusion visits
Expected performance	Patient satisfaction > 90% Meet budget	Many additional measures: e.g., 100% daily huddles; > 80% of referrals get appointments within 72 hours
Infusion Manager		
Means of production	4 admins with different roles Within-group processes Space for IT admins	New shared processes with clinic admins Changed space for cross-training with clinic admins
Expected production	Solely responsible for administrative work associated with patients' infusion visits	Shared responsibility for scheduling infusion visits
Expected performance	Patient satisfaction > 90% Meet budget	Additional measures
Call Center Manager		
Means of production	Admin staff Routing system and database Equipment and space	New routing processes in system New scripts in database
Expected production	Responsible for processing calls and routing them to the appropriate group at UCC	No change
Expected performance	Routing accuracy Patient satisfaction Quality assurance audits	Meet prior performance standards for new processes
IT Group Manager		
Means of production	Developers and engineers IT system, equipment, space	No change
Expected production	Responsible for building, maintaining part of IT system that supports clinic scheduling	New functionality in IT system Ongoing support of new functionality
Expected performance	Customer satisfaction Response time Down time	Meet prior performance standards for new functionality
Facilities Manager		
Means of production	Space planners IT system, equipment, space	No change
Expected production	Responsible for building and monitoring spaces compliant with policies and regulations	Approve new space Ongoing monitoring of space for continued compliance
Expected performance	All spaces compliant Meet budget	Meet prior performance standards for new space

“vacuum of understanding.” She explained, “Since there was the vacuum of understanding, we now had all of these leaders move in with their own story.

Table 4. Administering New (Admin) or Old (Navigator) Spheres of Obligation

Admin	Navigator
Examples of managers administering new or old spheres of obligation	
<p>Interaction from planning meeting one week before the launch:</p> <p>Consultant [<i>to clinic managers</i>]: Alright remember, your work is to engage your teams. The first week of testing is chaotic for folks. Engage with them, get their participation especially during that first week.</p> <p>Follow-up documentation after a planning meeting after launch:</p> <p>Opportunities: Cross-training is being slowed by Standard Work lacking in content.</p> <p>Countermeasure: [Clinic mgr.], [Admin mgr.] [Consultant] will meet to address this.</p> <p>Interaction during a huddle 4 months after launch:</p> <p>Admin lead: Hey we're doing the huddle. Yesterday was a big day and we got 100%. We're going to update the skills matrix and we're ahead on progress, like 80% done.</p> <p>Jill (Manager): That's fantastic.</p> <p>Admin lead: And we got new phones, that's good. Waiting on white noise machine and some of the headsets, which Jill has coming.</p>	<p>Navigator [<i>in an interview</i>]: I don't see how the consultants can train the navigators. They don't manage them. And they haven't communicated about it to [manager] and [manager]—so they aren't clear on the plan themselves.</p> <p>Clinic manager [<i>in a debrief meeting a few weeks after the launch</i>]: Look, for our clinic, we didn't know what to do—so they just kind of did anything and everything like before.</p>
Examples of managers synchronizing, or not, interdependences with other managers	
<p>Interaction from initiative meeting three months after launch:</p> <p>Clinic manager: I heard from [the authorization manager] that the quality of the information in the surgery scheduling note affects her team's ability to do the insurance authorization. I'm talking to [admins] about ensuring the quality of the scheduling information. This has downstream effects on patient care.</p> <p>[Group agrees.]</p>	<p>After the soft launch, the navigator reported back during a planning meeting:</p> <p>Navigator: New patients are still being given the old new patient packet. One of the patients was really bothered by the duplicated forms. The front desk didn't know about our new packet and there were also front desk staffing changes. We didn't look great in [the patient's] eyes.</p>

They have the authority, not us.” She explained that she wanted to see doctors and managers take leadership of the plan but not to entirely redefine it.

Not only was there confusion over the plan, but also there was confusion over who should implement it, as reflected in a team meeting immediately after launch:

- Consultant lead**: I am worried about where this next meeting will go, with what [doctor] thinks should happen vs. what we think should happen.

Consultant 2: Yeah, I don't know if we are where she thinks we are. . . . But does that mean we launched? Did they launch?

Consultant lead: No one told me.

Consultant 2: No one told me either.

Meanwhile, a manager told me, “People are confused. People are doing the wrong thing. Nobody knows who’s doing what or who’s supposed to do what. Problems arise and nobody fixes them or thinks about how to fix them or has a notion of how to fix them. They just are saved on this list.” In an interview, the new consultant described this confusion:

There's a period where you're thinking about vision and there's a period where you're thinking about how to implement this shit on the ground. Somewhere in [this implementation process] there are decisions that get made. If there's nobody there when that's happening, the vision turns to nothing. And that was the [Navigator] project. The managers didn't understand what was supposed to happen, and the consultants weren't there. No one was there on the ground when we supposedly "launched."

After the launch, the staff kept questioning which role was supposed to do what tasks. Without active clarification from their managers, they continued with their original work patterns.

Managers do not synchronize new interdependencies. Implementation of the plan further faltered because there was no one designated to help synchronize intended changes with other groups. For example, on the day of the small pilot launch, one navigator wanted to take on her expanded role, including going into clinic appointments with the doctors. But medical residents in the clinic did not know about her new role and did not know about changes to how the clinic should run. The navigator was frustrated with the residents behaving in old ways and expecting her to behave in the old ways. This issue was discussed in a follow-up meeting. The medical director said to the consultants, "Do you have a standard instruction for residents? Could we develop a letter for residents to tell them? We have to teach them how their role overlaps with [the navigators]."

Another example of the surrounding network impinging on the navigators' new practices related to the "first call." The navigators were supposed to conduct a scheduled phone call with all new patients in advance of their first visit. The Navigator consultants planned for an upstream group, the new patient coordinators (NPCs), to schedule the call and to collect certain information (e.g., medical records) before that call. But later, the unanticipated strain of the new tasks swamped the busy NPCs, limiting the navigators' ability to do the first call. And downstream from the new practice, the doctors were impatient with the time that the first call took. Several people described instances of doctors publicly directing the nurse navigators to stop doing the calls because the calls delayed some of the doctors' key tasks.

Much of this initiative's struggle was attributed to unmanaged interdependencies. One of the doctors explained her frustration with the proposed changes:

I think that the [Navigator consultants] underestimated how many interfaces this actually is. Everybody knows [the patient interface], everybody knows the physicians in our clinic, but there's also the chemo unit, the OR [operating room], the PACU [post-anesthesia care unit], the hospital, the residents, the fellows, the in-patient nurses, the case managers, the social workers, dieticians. . . . every service that we send the patients to. All of those interfaces have to be planned and managed.

These different groups were not part of a renegotiation process and continued to behave as they had before, not knowing how to modify their practices to interface with this newly designed role.

DISCUSSION

One of the learning initiatives I studied resulted in practice change in many interdependent groups, and the other did not. The salient difference between

them was in how the change agents—staff consultants in this case—engaged with the organizational hierarchy as they planned and implemented the initiatives. During the more successful initiative, the consultants began by working to discover all of the different groups that would have to change for the overall goal to be met. They then met with the managers of those groups and renegotiated each manager's formal obligations until they all agreed on a new set of obligations for which the managers were willing to be accountable. During the less successful initiative, a different team of consultants also met with managers, but they focused those discussions on visioning new values, even after many months. The managers were not asked to commit to any new obligations, the plan remained abstract, and the managers and workers struggled to know exactly what they were supposed to do. The managers' understanding of their renegotiated obligations shaped whether they carried out new obligations to support the planned improvements or continued with old ways of carrying out their obligations, including reverting to old ways of coordinating between-group interdependencies. This framework adds to organizational learning theory and to theories of the learning–hierarchy relationship.

The Process of Organizational Learning

This study addresses how coherent organization-wide learning occurs. Previous research has characterized learning in organizations as a local and social activity but has not explained how multiple groups synchronize improvements to their interdependent work activities. A key result of this study is a process model of synchronized group learning. In some ways, it is straightforward and consistent with prior research: change agents made a plan—similar to the “know what” learning activities identified in prior research—and then implemented the plan using the “know how” activities, with local groups experimenting with new practices (Tucker, Nembhard, and Edmondson, 2007; Nembhard and Tucker, 2011). But the model differs from these prior depictions of learning because it illustrates why and how learning activities need to be synchronized across interdependent groups. For example, changes to the admins' work required members of the call center group and the infusion group to learn new practices, required that several IT teams build new functionality, and required the facilities team to build and regulate new space and equipment. The new model thus contributes understanding about how to manage between-group interdependencies during learning processes (Henderson and Clark, 1990; Wenger, 2000).

The managers of the groups affected by the Admin initiative were closely involved in helping synchronize and troubleshoot the changing interdependencies between their groups. For example, the admin manager and the call center manager held daily phone calls for several weeks to troubleshoot misrouted calls, and the admin manager helped the admins adapt their work because they were sending incorrect information to the insurance authorization group. My data suggest that the managers were able to help synchronize the changing interdependencies because they each understood what their group was supposed to do in support of the new goal. Because of the small number of cases in this study, it is not possible to say conclusively why the managers were the ones who mainly helped synchronize the changing interdependencies after the launch or what other roles might also be able to serve that function. But the patterns of interaction seemed to relate to the managers having the authority,

capacity, and ultimate accountability for solving emergent problems that arose in their groups. Future research can explore the relationship among these various dimensions of managers' roles as they pertain to both within-group learning and synchronized group learning.

These results also add to situated learning theories, which argue that abstract models and plans are problematic for organizational learning because they are usually irrelevant to how people actually do their work (Brown and Duguid, 1991, 2000, 2001; Szulanski, 1996). My results resonate with these theories—as evidenced by the huge binders of standard work that the staff joked about and never used. But my results also contribute new insight by illustrating how the process of co-creating these plans helped develop improved understanding among the workers, managers, and consultants. For example, the consultants in the successful initiative crafted their plans by asking the managers for decisions and commitments about what needed to happen for new goals to be met. These interactions seemed to help develop improved understanding, which was eventually codified in the abstract standard work. In this way, the plans can be considered a boundary object between the learning group (i.e., the consultants) and the operational groups (i.e., the managers and workers) (Wenger, 2000; Bechky, 2003, 2011). This study thus identifies a new process that helped the consultants and managers co-craft boundary objects in ways that integrated their perspectives, helping them develop new and improved understanding.

The Concept of Renegotiating Spheres of Obligation

The second takeaway of this study is the concept of renegotiating spheres of obligation, or the notion that hierarchical offices can be renegotiated in ways that support learning and change. This result contributes to theories related to the relationship between learning and hierarchy. Scholars have previously demonstrated considerable evidence for why hierarchy inhibits organizational learning (e.g., Adler, 2001; Bunderson and Reagans, 2011). Prior studies have tended to focus on the differential status and layered decision rights that constitute roles in the formal hierarchy. In contrast, my study highlights an undertheorized dimension of hierarchy—the obligations and accountability that are part of formal hierarchy—which supports new predictions for when hierarchy might help or hinder learning. Formal obligations direct someone's attention and activities (Ocasio, 1997), and my results show that they can be discussed and changed in ways that support learning. For example, the admin manager had historically been responsible for achieving patient satisfaction scores greater than 90 percent and was asked as part of the learning initiative to take on a new goal: to get appointments within 72 hours for 80 percent of new patients. When asked to take on this new obligation, this manager asked for new resources and helped the consultants and senior managers to understand that meeting this goal would also require the medical records group and the call center group (among others) to change. This example and many others showed that the managers' formal obligations could be renegotiated in ways that helped them and others understand system-level consequences of local activities. And when the managers committed to new obligations, they changed how they administered their groups.

The idea that formal obligations can be renegotiated to support improved understanding and activities is an important shift from prior conceptualizations of hierarchy. This shift is resonant with the argument Adler and Borys (1996) made that formalized bureaucratic workflows can be enabling or coercive, depending on how they are used. This study shows that formal obligations can be used in ways that perpetuate the status quo or in ways that bring about new understanding or activities. By more fully theorizing this other dimension of hierarchy, I identify ways that hierarchy might relate to learning beyond those recognized in prior research. Future research could explore the interplay of these different dimensions of hierarchy (authority vs. obligation) during different phases of learning and change. For example, research could explore the balance between managers' authority, which in this study was used to synchronize change with other groups, and group members' autonomy, which was helpful for their efforts to improvise new practices. This additional research is especially needed given Wiedner, Barrett, and Oborn's (2016) finding that neglected change processes are more successful than managed change processes because group members can improvise.

The concept of renegotiating spheres of obligation also adds to a related stream of research that theorizes how managers' actions can help mitigate the harmful effects on learning of status differences and layered decision rights. This research shows how leaders can proactively establish conditions that enable learning, such as psychological safety, member inclusiveness, team stability, team identification, coaching, and time to experiment and reflect (Edmondson, 1999; Cannon and Edmondson, 2001; Edmondson, Bohmer, and Pisano, 2001; Van der Vegt and Bunderson, 2005; Nembhard and Edmondson, 2006; Bunderson and Reagans, 2011; Nembhard and Tucker, 2011). My results suggest additional ways that managers' actions can mitigate detrimental effects of hierarchical structures: they can support group members' learning and change by administering new obligations, including new resources and new performance or production expectations, as did the admin manager who staffed her admin cell differently to meet new coverage goals, relocated the large scale so the admins could all sit together and cross-train on their work, and held daily huddles to review new performance metrics. Also, the IT group manager committed to building a new functionality and then staffed, resourced, and supported her group as they learned how to build the new templates.

These and many other examples show that when managers administer local resources and expectations in different ways, their group members learn as they adapt to the new situation. This insight is simple but important, suggesting that managers can overcome the potentially ossifying parts of their hierarchical offices by committing to and administering new obligations. The idea that groups learn as they adapt to new resources and situations is core to situated learning theory (Lave, 1988; Orlikowski, 1996; Tyre and von Hippel, 1997; Feldman and Orlikowski, 2011). It is therefore theoretically useful to recognize that managers often play a key role in shaping the resources and situations available to their staff. Future research could explore how managers can hold group members accountable for new resources and new activities in ways that also establish safety and inclusion, conditions identified as important for learning (Edmondson, 1999; Nembhard and Edmondson, 2006).

Finally, the idea of renegotiating spheres of obligation also adds to strategic change theories. Many prior studies have shown that leaders in the formal

hierarchy help people make sense of and accept strategic organization-wide change (Gioia and Chittipeddi, 1991; Dutton and Ashford, 1993; Dutton et al., 1997; Dutton et al., 2002; Rouleau, 2005; Howard-Grenville, 2007; Rouleau and Balogun, 2011). My study similarly theorizes leaders' activities that help support coherent organization-wide change but differs from prior research by revealing a specific problem that can arise during this process: managers and workers may not know exactly what to do to accomplish a desired change. My theoretical framework illustrates a particular process whereby change agents and managers together can develop new understanding about how each group needs to change in support of new goals. Future research could explore how the learning processes that I identified relate to the important issue-selling and sensemaking change processes depicted in prior research.

The Role of Consultants, Leaders, or Other Change Agents

The process I studied was largely managed (i.e., scheduled, coordinated, documented, and facilitated) by the full-time UCC staff consultants, who had the endorsement of senior managers. An important consideration for the generalizability of these results is how this process might unfold in settings that do not involve staff consultants. Future research can explore whether and how synchronized group learning unfolds in a less formally orchestrated way, particularly changes to between-group interdependencies. One main set of activities the consultants carried out was to document the "current state" and "map" the between-group interdependencies. The consultants and senior managers used these abstract representations to figure out which groups needed to be involved in the planning and to make new plans. Perhaps in organizations that do not have consultants, senior managers or local managers could manage the process of identifying between-group interdependencies and inviting other relevant managers to participate in the planning process. It is important to note that the consultants and senior managers struggled to anticipate all of the entangled groups that would need to be involved in the change. This understanding had to be developed, and the interdependencies often had to be discovered. Future research might explore how local managers or group members manage this process.

The consultants also facilitated the renegotiation process. Without consultants, perhaps senior managers could renegotiate directly with local managers, formally documenting decisions and commitments themselves. Or perhaps local managers might collectively renegotiate their various obligations (similar to the linking pin function identified by Likert, 1961). Future research might explore whether the consultants as neutral change agents—who championed the new goal but had no operational position themselves—facilitated these renegotiations in important ways. Renegotiations directly between peer managers might feel more competitive in contrast (Cyert and March, 1963). And renegotiations directly between senior and local managers might potentially feel coercive, inhibiting learning. Or perhaps shared understanding and familiarity between members of the formal hierarchy can actually facilitate renegotiations.

Coherent organization-wide learning sometimes requires multiple specialized groups to synchronize their improvement activities, both by changing local practice in coordinated ways and by altering their between-group interdependencies. This paper describes how change agents took advantage of hierarchy to synchronize learning in multiple groups. The learning process that they

managed involved “connecting the dots” (i.e., discovering relevant networks of managers) and renegotiating the managers’ spheres of obligation. Such a process may help even very complex organizations develop coherent improvements for those they serve.

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