

Why Teams Don't Work

J. Richard Hackman

A few years ago, Paul Osterman, an economist at MIT, did a careful national survey of innovative work practices in U.S. manufacturing firms. He found that more than half the companies surveyed were using teams—and that some 40% of these companies reported having more than half the organization working in teams (Osterman, 1994). How well do all these teams perform? To judge from books and articles written for a managerial audience, the answer is clear: Teams markedly outperform individuals, and self-managing (or self-regulating, or self-directed, or empowered) teams do best of all.

Here are some reports from the field, cited by Osburn, Moran, Musselwhite, and Zenger (1990) in *Self-Directed Work Teams: The New American Challenge*. At Xerox, the authors report,

Plants using work teams are 30 percent more productive than conventionally organized plants. Procter & Gamble gets 30 to 40 percent higher productivity at its 18 team-based plants. . . . Tektronix Inc. reports that one self-directed work team now turns out as many products in 3 days as it once took an entire assembly line to produce in 14 days. . . . Federal Express cut service glitches such as incorrect bills and lost packages by 13 percent. . . . Shenandoah Life processes 50 percent more applications and customer service requests using work teams, with 10 percent fewer people. (pp. 5–6)

Heady stuff, that, and it is reinforced by back-cover blurbs. Tom Peters: “Self-directed work teams are the cornerstone of improved competitiveness . . .” Bob Waterman: “*Self-Directed Work Teams* seems too good to be true: dramatic improvement in productivity and a happier, more committed, more flexible work force. Yet . . . they do just what they promise for the likes of P&G, GE, and Ford.”

It makes sense. Teams bring more resources, and more diverse resources, to bear

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on a task than could any single performer. Moreover, teams offer flexibility in the use of those resources—the capability to quickly redeploy member talents and energies and to keep the work going even when some members are unavailable. Teams composed of people from different units can transcend traditional functional and organizational barriers and get members pulling together toward collective objectives. And, of course, teams offer the potential for synergy, that wonderful state when a group “clicks” and members achieve something together that no one of them could possibly have accomplished alone. These are major benefits, worthy of the attention of the leaders of any purposive enterprise. No wonder Osterman found teams to be *so* popular.

But there is a puzzle here. Research evidence about team performance shows that teams usually do less well—not better—than the sum of their members’ individual contributions. I first encountered this bleak fact as a beginning doctoral student at the University of Illinois. In a course on group dynamics, Ivan Steiner put on the board his now well-known equation: $AP = PP - PL$; that is, the *actual* productivity of a group equals its *potential* productivity (what the team is theoretically capable of, given the resources brought by members) minus what he called *process losses* such as coordination and motivational problems (Steiner, 1972). I was surprised that there was no term for process *gains*, the synergistic benefits that can emerge when people work together. The model, I thought, should really read: $AP = PP - PL + PG$.

It turns out that there is no empirical justification for that extra term. When interacting teams are compared to “nominal” groups (i.e., groups that never meet, whose output is constructed by combining the separate contributions of those who would have been members), nominal groups usually win. And when Steiner’s models miss the mark in empirical studies, the problem usually is that groups fail to achieve even the relatively modest performance targets specified by those models.

At least for groups in the experimental laboratory. Maybe the laboratory context is so constraining that groups do not have the elbow room to show what they can do. Maybe the real advantages of groups are only to be found in organizational practice. I came up short on this hypothesis as well, this time at the hands of Bill Hicks, an editor at Jossey-Bass. My colleagues and I had completed an intensive study of some 33 different work groups of all different kinds—athletic teams, industrial production workers, top management teams, prison guards, airline crews, economic analysts, and more. We pulled our findings together in a book that I proposed be titled *Groups That Work*, a catchy phrase with what I thought to be a clever pun. Bill sat me down and said he’d be happy to publish the book, but not with that title: There were just too many groups in our study that barely worked at all. I went back to the manuscript and found that he was right. Probably 4 of our 33 groups were actually effective teams. The rest had problems so severe that our analysis was mainly about what had gone wrong with them. So the book was published with a parenthetical phrase after my clever title: *Groups That Work (And Those That Don’t)*. Anyone who actually reads through it will discover, as Bill did, that most of our groups lie within the parentheses.¹

¹Moreover, the preface of the book offers a cautionary note about team effectiveness, based on the experience of the authors who wrote it. The book took 9 years to be completed, mainly because our own team suffered a near-total collapse midway through the project.

Other in-depth studies of real groups performing real work provide additional reasons for concern—such as Irving Janis's (1982) well-known demonstration that even highly cohesive groups composed of well-qualified, well-motivated people sometimes fall into a pattern of "groupthink" that can yield disastrous policy recommendations.

What, then, are we to make of all the team successes reported in the managerial literature? It is possible, of course, that the published claims are exaggerated, as writers have sought to catch the wave of enthusiasm about teams—to sell books, to build consulting practices, to market training programs, to become team gurus. That is not a sufficient explanation. Indeed, I trust the accuracy of the numbers about productivity and service gains that are reported in the popular books about teams. My concern, instead, is whether those numbers really mean what they seem to mean.

Consider first the attributions that are made about the *causes* of team successes. After teams have been implemented in an organizational unit, its performance typically is compared to that of a conventional unit (or, perhaps, to the same one before teams were installed). Such comparisons are fraught with interpretive ambiguities, because there invariably are many differences between the units compared—in technologies, labor markets, senior managers, and so on. It almost never is the case that the *only* change is that work previously done by individuals is now performed by teams. Was it the teams that generated the improvements, or was it one of the other differences between the units? It is not possible to know for sure.²

Questions also can be raised about the *staying power* of any performance improvements obtained when teams are installed. The implementation of any new management program, be it self-managing teams or anything else, invariably involves intense scrutiny of the unit where the changes will occur. Taking a close look at any work unit that has been operating for a while almost always surfaces some inefficiencies and poor work procedures. These incidental problems are corrected as part of the change process—it would be foolish not to. But in making those corrections, an interpretive ambiguity is introduced. Was it the team design that resulted in the improvements found, or was it that a shoddy work system was shaped up? Virtually any intervention that is not itself destructive has a better-than-even chance of generating short-term improvements, simply because of the value of intently inspecting a work system. This, in addition to any benefits from the well-known "Hawthorne effect" (Roethlisberger & Dickson, 1939). The question, then, is whether short-term improvements associated with the introduction of teams are sustained over time as the newness wears off and inefficiencies begin to creep back into the system. Again, it is not possible to know for sure—at least not without an appropriate longitudinal research design.

²The solution to this problem, of course, is to conduct experimental research on the impact of team designs for work, because true experiments allow unambiguous inferences to be drawn about the causes of any effects obtained. Unfortunately, experiments are rarely a viable option for comparing team and traditional work designs in organizations. For one thing, the level of experimenter control required in such studies (i.e., to randomly assign people to teams and teams to experimental conditions) would not be tolerated by most managers who have work to get out. And even if an organization were found in which managers would relinquish such control to experimenters, there would be serious questions about the generalizability of findings obtained in such an unusual place (Hackman, 1985).

So what is going on here? How can we reconcile the amazing reports from the field about the benefits of teams with the gloomy picture that has emerged from scholarly research on group performance? Do teams generate the benefits for their organizations that are claimed for them, or do they not?³

My observations of teams in organizations suggest that teams tend to clump at both ends of the effectiveness continuum. Teams that go sour often do so in multiple ways—clients are dissatisfied with a team’s work, members become frustrated and disillusioned, and the team becomes ever weaker as a performing unit. Such teams are easily outperformed by smoothly functioning traditional units. On the other hand, teams that function well can indeed achieve a level of synergy and agility that never could be preprogrammed by organization planners or enforced by external managers. Members of such teams respond to their clients and to each other quickly and creatively, generating both superb performance and ever-increasing personal and collective capability. Teams, then, are somewhat akin to audio amplifiers: Whatever passes through the device—be it signal or noise—comes out louder.

To ask whether organizational performance improves when teams are used to accomplish work is to ask a question that has no general answer. A more tractable question, and the one explored in the remainder of this chapter, is what differentiates those teams that go into orbit and achieve real synergy from those that crash and bum. As we will see, the answer to this second question has much more to do with how teams are structured and supported than with any inherent virtues or liabilities of teams as performing units.

Mistakes Managers Make

In the course of several research projects, my colleagues and I have identified a number of mistakes that designers and leaders of work groups sometimes make. What follows is a summary of the six most pernicious of these mistakes, along with the actions that those who create and lead work teams in organizations can take to avoid them.⁴

Mistake I: Use a Team for Work That Is Better Done by Individuals

There are some tasks that only a team can do, such as performing a string quartet or carrying out a multiparty negotiation. There are other tasks, however, that are inimical to team work. One such task is creative writing. Not many great novels,

³There is a large and diverse published literature on the performance of self-managing teams. Here is a “starter set” of illustrative and informative pieces: Cohen and Ledford (1994), Cordery, Mueller, and Smith (1991), Gunn (1984), Jackson, Mullarkey, and Parker (1994), Poza and Marcus (1980), Wall, Kemp, Jackson, and Clegg (1986), and Walton (1980).

⁴Some of the material in the next section is adapted from Hackman (1990).

symphonic scores, or epic poems have been written by teams. Such tasks involve bringing to the surface, organizing, and expressing thoughts and ideas that are but partially formed in one's mind (or, in some cases, that lie deep in one's unconscious), and they are inherently better suited for individual than for collective performance. Even committee reports—mundane products compared to novels, poems, and musical scores—invariably turn out better when written by one talented individual on behalf of a group than by the group as a whole working in lockstep.

The same is true for executive leadership. For all the attention being given to top management teams these days, my reading of the management literature is that successful organizations almost always are led by a single, talented and courageous human being. Among the many executive functions that are better accomplished by an exceptional individual than by an interacting team is the articulation of a challenging and inspiring collective direction. Here, for example, is a mission statement copied from a poster in a company cafeteria: "Our mission is to provide quality products and services that meet the needs of individuals and businesses, allowing us to prosper and provide a fair return to our stockholders." Although I do not know how that particular statement was prepared, I would be willing to wager that it was hammered out by a committee over many long meetings. The most engaging and powerful statements of corporate vision, by contrast, invariably are the product of a single intelligence, set forth by a leader willing to take the risk of establishing collective purposes that lie just beyond what others believe to be the limits of the organization's capability.

Beyond creative writing and executive leadership, there are many other kinds of tasks that are better done by individuals than by teams. It is a mistake—a common one and often a fatal one—to use a team for work that requires the exercise of powers that reside within and are best expressed by individual human beings.

Mistake 2: Call the Performing Unit a Team but Really Manage Members as Individuals

To reap the benefits of teamwork, one must actually build a team. Real teams are bounded social systems whose members are interdependent for a shared purpose, and who interact as a unit with other individuals and groups in achieving that purpose (Alderfer, 1977). Teams can be small or large, face-to-face or electronically connected, and temporary or permanent. Only if a group is so large, loosely connected, or short-lived that members cannot operate as an intact social system does the entity cease to be a team.

Managers sometimes attempt to capture the benefits of teamwork by simply declaring that some set of people (often everyone who reports to the same supervisor) is now a team and that members should henceforth behave accordingly. Real teams cannot be created that way. Instead, explicit action must be taken to establish and affirm the team's boundaries, to define the task for which members are collectively responsible, and to give the team the autonomy members need to manage both their

own team processes and their relations with external entities such as clients and coworkers.

Creating and launching real teams is not something that can be accomplished casually, as is illustrated by research on airline cockpit crews. It is team functioning, rather than mechanical problems or the technical proficiency of individual pilots, that is at the root of most airline accidents (Helmreich & Foushee, 1993). Crews are especially vulnerable when they are just starting out: the National Transportation Safety Board (NTSB) found that 73% of the accidents in its database occurred on the crew's first day of flying together, and 44% of those accidents happened on the crew's very first flight (National Transportation Safety Board, 1994, pp. 40–41). Other research has shown that experienced crews, even when fatigued, perform significantly better than do rested crews whose members have not worked together (Foushee, Lauber, Baetge, & Acomb, 1986), and that a competent preflight briefing by the captain can help reduce a crew's exposure to the liabilities of newness (Ginnett, 1993).

This substantial body of research has clear policy implications. Crews should be kept intact over time, preflight briefings should be standard practice, and captains should be trained in the skills needed to conduct briefings that get crews off to a good start (Hackman, 1993). Yet in most airlines, crew composition is constantly changing because of the long-standing practice, enforced by labor contracts, of assigning pilots to trips, positions, and aircraft as individuals—usually on the basis of a seniority bidding system. Virtually all U.S. airlines now do require that crew briefings be held. Yet captains receive little training in how to conduct a good one, some briefings are quite cursory (e.g., “Let's get the social hour over real quick so we can get on out to the airplane”), and schedules can get so hectic that crew members may not even have time for proper introductions, let alone a briefing, before they start to fly together.

Creating and launching real teams is a significant challenge in organizations such as airlines that have deeply rooted policies and practices that are oriented primarily toward individuals rather than teams. To try to capture the benefits of teamwork in such organizations, managers sometimes opt for a mixed model in which some parts of the work and the reward system are structured for individual performance, whereas other parts require teamwork and provide team-based rewards. Research has shown that such compromises rarely work well. Mixed models send contradictory signals to members, engender confusion about who is responsible and accountable for what portions of the work, and generally underperform both individual and real-team models (Wageman, 1995). If the performing unit is to be a team, then it should be a *real* team—and it should be managed as such.

Mistake 3: Fall Off the Authority Balance Beam

The exercise of authority creates anxiety, especially when one must balance between assigning a team authority for some parts of the work and withholding it for other parts. Because both managers and team members tend to be uncomfortable in

such situations, they may implicitly collude to “clarify” who is really in charge of the work. Sometimes the result is the assignment of virtually all authority to the team—which can result in anarchy or in a team heading off in an inappropriate direction. Other times, managers retain all authority for themselves, dictating work procedures in detail to team members and, in the process, losing many of the advantages that can accrue from team work.

To maintain an appropriate balance of authority between managers and teams requires that anxieties be managed rather than minimized. Moreover, it is insufficient merely to decide how much authority a team should have. Equally important are the domains of authority that are assigned to teams and retained by managers. Our research suggests that team effectiveness is enhanced when managers are unapologetic and insistent about exercising their own legitimate authority about *direction*, the end states the team is to pursue. Authority about the *means* by which those ends are accomplished, however, should rest squarely with the team itself.⁵

Contrary to traditional wisdom about participative management, to authoritatively set a clear, engaging direction for a team is to empower, not depower, it. Having clear direction helps align team efforts with the objectives of the parent organization, provides members with a criterion to use in choosing among various means for pursuing those objectives, and fosters the motivational engagement of team members. When direction is absent or unclear, members may wallow in uncertainty about what they should be doing and may even have difficulty generating the motivation to do much of anything.

Few design choices are more consequential for the long-term well-being of teams than those that address the partitioning of authority between managers and teams. It takes skill to accomplish this well, and it is a skill that has emotional and behavioral as well as cognitive components. Just knowing the rules for partitioning authority is insufficient; one also needs some practice in applying those rules in situations where anxieties, including one's own, are likely to be high.⁶ Especially challenging are the early stages of a group's life (when well-meaning managers may be tempted to give away too much authority) and when the going gets rough (when the temptation is to take authority back too soon). The management of authority relations with task-performing groups is much like walking a balance beam, and our evidence suggests that it takes a good measure of knowledge, skill, and perseverance to keep from falling off.

⁵As used here, the terms manager and team refer to conventional organizational arrangements in which some individuals (“managers”) are authorized to structure work for performance by other organization members. Teams that have been given the authority to monitor and manage their own work processes are therefore called “self-managing.” In some circumstances, teams also have the authority to set their own direction. Examples include physicians in a small-group practice, a professional string quartet, and a mom-and-pop grocery store. These kinds of teams are referred to as “self-governing” (Hackman, 1986).

⁶Given that newly minted MBAs increasingly find themselves working in or leading task-performing teams immediately after graduation, it is unfortunate that few MBA programs provide their students with practice and feedback in developing such skills.

Mistake 4: Dismantle Existing Organizational Structures So That Teams Will Be Fully “Empowered” to Accomplish the Work

Traditionally designed organizations often are plagued by constraining structures that have been built up over the years to monitor and control employee behavior. When teams are used to perform work, such structures tend to be viewed as unnecessary bureaucratic impediments to group functioning. Thus, just as some managers mistakenly attempt to empower groups by relinquishing all authority to them, so do some attempt to cut through bureaucratic obstacles to team functioning by dismantling all the structures that they can. The assumption, apparently, is that removing structures will release the pent-up power of groups and make it possible for members to work together creatively and effectively.

Managers who hold this view often wind up providing teams with less structure than they actually need. Tasks are defined only in vague, general terms. Lots of people may be involved in the work, but the actual membership of the team is unclear. Norms of conduct are kept deliberately fuzzy. In the words of one manager, “The team will work out the details.”

If anything, the opposite is true: Groups with appropriate structures tend to develop healthy internal processes, whereas groups with insufficient or inappropriate structures tend to be plagued with process problems.⁷ Because managers and members of troubled groups often perceive, wrongly, that their performance problems are due mainly to interpersonal difficulties, they may turn to process-focused coaching as a remedy. But process consultation is unlikely to be helpful in such cases, precisely because the difficulties are structurally rooted. It is a near impossibility for members to learn how to interact well within a flawed or underspecified team structure.

Our research suggests that an enabling structure for a work team has three components. First is a well-designed team task, one that engages and sustains member motivation. Such tasks are whole and meaningful pieces of work that stretch members’ skills, that provide ample autonomy for doing what needs to be done to accomplish the work, and that generate direct and trustworthy feedback about results. Second is a well-composed group. Such groups are as small as possible, have clear boundaries, include members with adequate task and interpersonal skills, and have a good mix of members—people who are neither so similar to one another that they are like peas in a pod nor so different that they are unable to work together. Third is clear and explicit specification of the basic norms of conduct for team behavior, the handful of “must do” and “must never do” behaviors that allow members to pursue their objectives without having to continuously discuss what kinds of behaviors are and are not acceptable. Although groups invariably develop their own norms over time, it is important to establish at the outset that members are expected to continuously monitor

⁷This point is reinforced in a quite different context by an essay written by Jo Freeman (1973) for her sisters in the feminist movement in the 1970s. The message of the essay is neatly captured by its title: “The Tyranny of Structurelessness.”

their environment and to revise their performance strategy as needed when their work situation changes.

The key question about structure, then, is not *how much* of it a team has. Rather, it is about the *kind* of structure that is provided: Does it enable and support collective work, or does it make teamwork more difficult and frustrating than it need be?

Mistake 5: Specify Challenging Team Objectives, but Skimp on Organizational Supports

Even if a work team has clear, engaging direction and an enabling structure, its performance can go sour—or fall well below the group's potential—if it has insufficient organizational support. Teams in what Richard Walton (1985) calls “high commitment” organizations can fall victim to this mistake when they are given challenging objectives but not the resources to achieve them. Such teams often start out with great enthusiasm but then become disillusioned as they encounter frustration after frustration in trying to obtain the organizational supports they need to accomplish the work.

If the full potential of work teams is to be realized, organizational structures and systems must actively support competent teamwork. Key supports include (1) a reward system that recognizes and reinforces excellent team performance (not just individual contributions); (2) an educational system that provides teams, at their initiative, any training or technical consultation that may be needed to supplement members' own knowledge and expertise; (3) an information system that provides teams the data and forecasts members' need to proactively manage their work; and (4) the mundane material resources—equipment, tools, space, money, staff, or whatever—that the work requires.

It is no small undertaking to provide these supports to teams, especially in organizations that already have been tuned to support work performed by individuals. Existing performance appraisal systems, for example, may be state-of-the-art for measuring individual contributions but wholly inappropriate for assessing and rewarding work done by teams. Corporate compensation policy may make no provision for team bonuses and, indeed, may explicitly prohibit them. Human resource departments may be primed to identify individuals' training needs and to provide first-rate courses to fill those needs, but training in team skills may not be available at all. Information and control systems may provide senior managers with data that help them monitor and control overall organizational performance, but teams may not be able to get the information they need to autonomously manage their own work processes.

To align existing organizational systems with the needs of task-performing teams usually requires managers to exercise power and influence both upward and laterally in the organization, and may involve difficult negotiations across functional boundaries. For these reasons, providing contextual supports for teams can be a

significant challenge for managers whose experience and expertise has mainly involved supporting and controlling work performed by individuals. That challenge is worth taking on, however, because an unsupportive organizational context can undermine even teams that are otherwise quite well directed and well structured. It is especially shattering for a team to fail merely because the organizational supports it needs cannot be obtained.

Mistake 6: Assume That Members Already Have All the Skills They Need to Work Well as a Team

Once a team has been formed and given its task, managers sometimes assume their work is done. A strict hands-off stance, however, can limit a team's effectiveness when members are not already skilled and experienced in teamwork—a not uncommon state of affairs in cultures where individualism is a dominant value.

It can be helpful, therefore, for leaders and managers to provide some coaching to individuals in honing their team skills and to the team as a whole in developing good group performance practices. There is no one best way to provide such help, nor is there any one best coaching style. Like teaching a class, coaching a group is done best when the leader exploits his or her own personality and style to get the lesson across.

Still, some things are known about the types of interventions that are helpful to teams and, importantly, about the times when different interventions are most likely to “take.” All social systems, including task-performing teams, go through discernible stages or phases overtime (Bales & Strodtbeck, 1951; Tuckman, 1965). Moreover, different task and interpersonal issues become salient for groups at those different times. The issues that are on members' minds when they first meet, for example, are quite different from those that command their attention as they are finishing up the work. Effective coaching interventions address issues that are naturally alive for the group at the particular time when they are made. Those that ask members to consider matters that are not salient for them at the time may do little other than distract the team from getting on with its work.

Recent research has identified three times in the life of a task-performing group when members are likely to be especially open to coaching interventions: (1) the beginning, when a group is just starting its work; (2) the midpoint, when half the work has been done and/or half the allotted time has passed; and (3) the end, when a piece of work has been finished.

There is much on a group's plate when members first come together to perform a piece of work—establishing the boundary that distinguishes members from nonmembers, starting to differentiate roles among members, developing initial norms about how members will work together, and engaging with (and, inevitably, redefining) the group task. Members' decisions about such matters, whether made explicitly or implicitly, establish a track for the group on which members stay for a considerable

time (Gersick, 1988; Ginnett, 1993). A coaching intervention that helps a group have a good “launch” can significantly enhance members’ engagement with each other, their commitment to the team, and their motivation to perform the work as well as they can. The payoff of a good launch can be substantial when, later in the team’s life, members encounter thorny task or interpersonal challenges.

A second window for coaching interventions opens around the midpoint of the group’s work. Research has shown that a group tends to stay on its initial track until about half of its allotted time has elapsed, at which point members experience a major upheaval that can result in a significant change in how they operate (Gersick, 1988). At such times (or at other natural breakpoints or low-workload periods), coaching interventions that encourage members to reflect on their work thus far and the challenges they next will face can be quite helpful to them in revising and improving their task-performance strategies.

The third special opportunity for coaching occurs at the end of a performance period—when the work is finished or a significant subtask has been accomplished. It is well established that people do not learn well when they brim with anxieties, including those that have to do with getting a piece of work finished on time and well. Because such anxieties dissipate once the work is finished, postperformance periods offer an especially good time for coaching interventions aimed at helping members capture and internalize the lessons that can be learned from their work experiences.

Although I am uneasy about the applicability of examples from athletic teams to work teams in organizations (both their tasks and their contexts are so different that generalization from one to the other must be done with caution), the behavior of good athletic coaches does illustrate the different coaching functions that can be performed at different times in the life of a group. In the locker room before the game, coaches tend to focus on matters of motivation, establishing that the contest about to begin will be quite challenging but that the team has a real chance to win if members play hard and well. Halftime, back in the locker room, is a time for *consultation*, revising the game strategy for the second half of play based on how things have gone thus far. The next day, when the team has gathered to review the game films, is the time when coaches focus on *education*, helping to build individual and team proficiency in preparation for the team’s next contest.⁸

There are, of course, many things that coaches can do at times other than those just discussed. They can, for example, be continuously alert for opportunities to recognize and reinforce competent team self-management, they can help the group obtain outside assistance or resources, and they can provide a generally supportive

⁸These three coaching functions reinforce the contributions of the structural and contextual features previously discussed. The motivational function reinforces the motivational benefits of a well-designed group task and of an organizational reward system that recognizes and rewards team excellence. The consultative function reinforces group norms that support team self-management and the group’s use of data provided by the organizational information system. The educational function helps the group take advantage of both good composition (i.e., members who have an appropriate mix of task-relevant skills) and of organizational systems that provide teams with any needed training or technical consultation.

and encouraging context for teamwork. Still, these three times in the life of a group—the beginning, midpoint, and end—offer openings for coaching interventions that may be especially welcomed by group members and helpful to them.

No matter how well-designed, well-timed, and well-executed coaching interventions are, they are unlikely to be of much help if a team's overall performance situation is poor. If members are unclear about what they are supposed to accomplish, if the team or its task are badly designed, or if the surrounding organization places obstacle after obstacle in the team's path, then a leader would be well advised to focus first on solving these more fundamental problems. It is nearly impossible to coach a team to greatness in a performance situation that undermines rather than supports teamwork (Wageman, 1996).

A favorable performance situation, on the other hand, yields a double benefit: Teams are likely to have less need for coaching interventions (because they encounter fewer problems that lie beyond their own capabilities), and the coaching that they do receive is likely to be more helpful to them (because they are not preoccupied with more basic, structurally rooted difficulties). Over time, such teams may become skilled at coaching themselves and perhaps even enter into a self-fueling spiral of ever-increasing team capability and performance effectiveness—just the kind of pattern that is described in all the popular books that tout the benefits of organizational work teams.

Why It Doesn't Happen

Imagine a team whose leaders have made none of the six mistakes described in the preceding section. The following facts would be true for that team:

1. The task is one that is fully appropriate for performance by a team.
2. The team is an intact performing unit whose members perceive themselves as a team and that others deal with as such.
3. The team has a clear, authoritative, and engaging direction for its work.
4. The structure of the team—its task, composition, and core norms of conduct—promotes rather than impedes competent teamwork.
5. The organizational context provides support and reinforcement for excellence through policies and systems that are specifically tuned to the needs of work teams.
6. Ample, expert coaching is available to the team at those times when members most need it and are ready to receive it.

All of the evidence that my colleagues and I have been able to obtain suggests that a team for which these six conditions hold would be likely to perform very well. It is, however, much easier to create these conditions for some types of teams, and in some kinds of organizations, than in others.

Consider, for example, a product development team in an entrepreneurial organization. The product development process lends itself to teamwork because it requires

coordinated contributions from several different specialties. Product development teams generally have a clear and engaging direction, and perform whole pieces of work for which they are relatively autonomous and about which they receive direct feedback (i.e., the product is created and works, or it isn't and doesn't). There are no built-in obstacles to composing the team well or to establishing task-appropriate norms of conduct. Such teams typically have access to the information and technical assistance they need for their work, and substantial rewards and recognition commonly are bestowed upon successful product development teams. With ample material resources and a little coaching to help in navigating the rough spots, there is no reason why most product development teams cannot be primed for good performance.

Start-up organizations, such as new plants or offices, also provide favorable settings for establishing the conditions that support team effectiveness. So long as those who design the new organizational unit are relatively free of structural or policy constraints imposed by a parent organization they should be able to design a team-based unit in which the six facts listed earlier are true.⁹

Yet most of the teams my colleagues and I have studied fall far short of meeting these six conditions. Why should this be so? The conditions themselves are not subtle, complex, or difficult to understand. Indeed, they are just the kinds of things that an alert manager surely could learn from experience. Are there more fundamental obstacles on the road to successfully structuring, supporting, and leading teams?

I have observed two such obstacles, one more commonly found in organizations that aspire to cooperative or democratic ideals, the other more characteristic of teams in established business corporations and public agencies.

The Co-op Obstacle

It has always bothered me that we in the United States, who cherish the principles of political democracy, so infrequently apply those principles to the workplace. Some years ago, therefore, I took a close look at worker cooperatives, organizations whose charters explicitly embrace democracy and where all important matters are decided by membership vote. Some of the co-ops I examined were so small that the whole organization operated as a single work team; others were larger enterprises that had many teams within them.

I found a number of successful work teams in cooperative organizations, but also a surprisingly large number of failures. The reasons for the failures are instructive.

⁹It is not happenstance that some of the most successful team-based organizational start-ups have been located far from corporate headquarters. A remote location provides a measure of freedom from potentially constraining corporate systems and policies that is unavailable to units within sight of corporate offices. Indeed, a number of highly successful team-based start-ups have gotten into trouble when corporate managers eventually discovered that the start-up organization was ignoring or violating corporate policy in the interest of creating a favorable environment for teamwork. For the same reason, attempts to diffuse the lessons learned from remotely sited, team-based units back to headquarters facilities often are unsuccessful.

Too often, co-op members debated endlessly about their values, purposes, and collective directions—while competitors who had a more focused business strategy took their customers away. Collaboration and teamwork were so highly valued that virtually all tasks were done by teams, even those that would have been better performed by individuals. Equity and equality were such dominant values that members found it difficult to delegate real authority to any of their number. To maximize the choices of member-owners, team composition often was based solely on personal preference rather than on an analysis of the mix of skills that the work actually required. And, finally, I found members of many co-ops quite reluctant to establish and enforce use of organizational structures and systems that could have supported teams in their work.

The democratic ideals of co-ops are wholly consistent with the use of self-managing teams to perform work. It is ironic, therefore, that in cooperative organizations, those ideals so frequently get in the way of creating the very conditions that promote team effectiveness.

The “co-op mistake” also is occasionally seen in other organizations, including businesses and public agencies, where ideological considerations come to dominate decision making about organizational structures and practices. I had the good fortune to observe and document many of the innovative organizational practices that founder Don Burr and his colleagues developed at People Express Airlines in the 1980s. That company turned out to experience some of the same kinds of issues in structuring and supporting its many self-managing teams as do worker cooperatives, and for some of the same reasons.

Part of Burr’s vision for People Express was to create a nonbureaucratic organization in which the inherent power of individuals and teams, locked up or suppressed in traditionally structured firms, could be unleashed in the service of customers, colleagues, and shareholders. To accomplish this, Burr and his senior management colleagues formulated a set of precepts that served as the guiding vision for the enterprise, they created self-managing teams throughout the company, and they made sure that every organization member was supported by leaders who had been well trained in the People Express precepts.

In its early years, when organization size was less than 1,000, People Express was a remarkable success—one of the fastest growing firms in the history of American business. Coordination among individuals and teams happened naturally in real time in the halls of the company offices at Newark airport, on airfield ramps, and in airplanes. Customers queued up to get seats on People Express, the company was the darling of Wall Street, and social scientists (including this one) wrote articles that described the company’s innovative organizational form and probed the reasons for its success (Hackman, 1984).

As People Express grew, it became increasingly difficult for members to coordinate in halls and airplanes, and operational problems became frequent and severe enough that many backers of the organization suggested that the time had come to beef up the organization, to install structures and systems to support its self-managing

workforce. To do so, however, would have been a retreat from the values on which People Express had been founded—namely, the transcending power of vision and leadership to unleash and direct the energies of organization members.

Values prevailed. Rather than installing the structures and systems that his backers advocated, Burr and his colleagues redoubled their efforts to ensure that all members of the organization deeply understood the company's vision and added even more trained leaders to coach and teach organization members. In a time of trouble, the founders reaffirmed the principles that had been responsible for their early success and behaved more vigorously than ever in accord with them.

It did not work. As People Express continued to grow, and as other airlines developed strategies for competing with it in the marketplace, financial and operational results deteriorated further. Eventually, disillusionment set in for some organization members and, finally, the operation itself cratered. At that point, it was only a matter of time until the company was acquired by a competitor and People Express ceased to exist.

In both the worker cooperatives and People Express Airlines, ideological currents ran strong and deep. And in both cases, perversely, those strong collective values made it nearly impossible for leaders to install the structural and contextual features that are among the key conditions for team effectiveness. These organizations, and many like them, attest to the fact that visionary direction and abundant coaching, by themselves, are insufficient to ensure the success of work teams in organizations.

The Corporate Obstacle

Many existing businesses and public agencies have in place organizational structures, systems, and policies that have been tuned over the years to control and support work performed by *individual* employees. Managers are understandably reluctant to overturn well-established organizational features just to see whether work teams actually generate the benefits claimed for them. Veteran managers have, after all, weathered quite a number of organizational innovations that had their origins in the behavioral sciences—management by objectives, job enrichment, T-groups, zero defects, quality of worklife, gain sharing, and a multitude of others. And, no doubt, there will be more to come after work teams have had their day and passed on.

There are two different strategies that managers use to implement work teams without upsetting the corporate applecart. One is to try to capture the benefits of teamwork by relying mainly on rhetoric and training. Members are told that they are now in teams, team leaders are appointed, and everyone is sent off to get training in good team processes. It is easy to implement teams this way—neither organizational structures nor managers' own behaviors need change. But such teams are more ephemeral than real, and mere changes in appearances rarely yield measurable improvements in organizational outcomes.

The second strategy is to form real teams—intact, performing units whose

members share responsibility for some product or service—but to lay them atop existing organizational structures and systems. The rationale, as one manager told me, is to see how well they perform before making other organizational changes that could be hard to reverse. With this strategy, one typically sees encouraging results early in the lives of the new teams, followed by a gradual diminution of both team performance and member commitment as the teams encounter obstacles rooted in long-standing and team-unfriendly organizational arrangements. That pattern is inevitable, I believe, when one seeks to obtain the benefits of work teams on the cheap, without providing them the organizational supports that they need to prosper over the long term.

In the foreword to *Self-Directed Work Teams* (Osburn et al., 1990), David Hanna, then-manager of organization development at Proctor & Gamble, identifies skepticism as the largest single roadblock to team success: “Beware of skepticism!” he warns. “Doubt your doubts. . . . Self-directed teams really do work” (pp. vii–viii). Indeed they can—but not without providing them the direction, structure, contextual supports, and coaching that makes excellent teamwork possible. And those supports turn out to be harder to arrange in established corporations and public agencies than is usually acknowledged either by managers who form teams or social scientists who study them.

Roots of the Obstacles

The co-op obstacle and the corporate obstacle are two sides of essentially the same coin. In both cases, there is an unwillingness or inability to establish the set of conditions that enable teams to perform well. For co-ops, the reluctance stems from an ideologically based preference for vision and leadership over hierarchy, structure, and bureaucracy. For corporations, the problem is the unfriendliness to teams of those organizational structures and systems that already exist—and with which managers are reluctant to meddle.

The reason why these obstacles are so pervasive and hard to circumvent is that both their co-op and corporate versions reflect what sociologists call “institutional” forces (DiMaggio & Powell, 1983; Zucker, 1977). Institutional forces result in organizations situated in similar environments becoming increasingly similar and persistent over time.¹⁰ They specify a set of “rightanswers” for organizational design

¹⁰Specifically, DiMaggio and Powell (1983) identify three processes that foster similarities across organizations and the temporal persistence of organizational features. Mimetic or imitative processes involve organizations turning to others of the same general type, especially those that are viewed as successful, as guides for how their own enterprise should be structured. Normative processes involve the cross-organization diffusion of socially defined “correct” ways of operating. It is not so much a question of how things actually are done in other enterprises, but what infused values and community expectations specify about how they should be done. Coercive processes involve agents with legitimate authority (such as government representatives) specifying how certain things must be done.

and management, and they are notoriously difficult to redirect—even in the face of resolute managerial action or significant environmental shocks (Allmendinger & Hackman, 1996).

Countering institutional forces is not management as usual. Nor do such forces yield gracefully to planned organizational change programs of the flipchart and to-do-list variety. As will be seen next, creating organizational conditions that support work teams is, more often than not, something of a revolutionary act.

What It Takes

The conditions that foster team effectiveness are simple and seemingly straightforward to put in place. A real team with work that lends itself to teamwork. A clear and engaging direction. A group structure—task, composition, and norms—that promotes competent teamwork. Team-friendly reward, educational, and information systems. And some coaching to help team members take advantage of their favorable performance circumstances.

Yet to install these simple conditions is also to determine the answers to four fundamental questions about how an enterprise operates:

1. *Who decides?* Who has the right to make decisions about how the work will be carried out, and to determine how problems that develop will be resolved?
2. *Who is responsible?* Where do responsibility and accountability for performance outcomes ultimately reside?
3. *Who gains?* How are monetary rewards allocated among the individuals and groups that helped generate them?
4. *Who learns?* How are opportunities for learning, growth, and career advancement distributed among organization members?

The answers to these four questions express some of the core values of any enterprise, and it can be maddeningly hard to change them. For one thing, to change the answers to the four questions is almost certain to threaten the turf and personal interests of currently powerful organizational actors. These individuals are therefore likely to find lots of good reasons why it would be ill-advised or excessively risky to alter standard ways of operating.

Moreover, the answers to the four questions are, in established organizations, supported by deeply rooted institutional structures: the authority structure (“Who decides?”), the work structure (“Who is responsible?”), the reward structure (“Who gains?”), and the opportunity structure (“Who learns?”). These structures not only give an organization much of its identity, but they also promote predictability and continuity over time. Predictability and continuity are much to be valued during times of business as usual. But when circumstances change and innovations such as work teams are called for, these deep structures can be among the strongest impediments to getting teams in place and working well.

Indeed, it may be that fundamental change can be accomplished in an established organization only when it has become destabilized for some other reason—for example, the departure of a senior manager, the rapid growth or dissolution of an organizational unit, financial disaster, or the introduction of a new technology that requires abandonment of standard ways of operating. Fundamental change cannot be accomplished either as an “add-on” (as managers in some corporations appear to wish) or as a one-step transition to utopia (as members of some cooperative enterprises appear to wish).

Creating organizational conditions that actively support work teams, therefore, is in many organizations more a revolutionary than evolutionary undertaking. And people get hurt in revolutions—especially those who lead them, and even when they are successful.

Consider the experience of Pete Townsend (not his real name), a production manager at a semiconductor plant where David Abramis and I conducted some research several years ago (Abramis, 1990). Pete had started out as a production worker at the plant. Although he had no formal training in semiconductor manufacturing (indeed, he was studying at night for his high school diploma), he thought he had a better idea about how to make semiconductors. Over time, he promulgated what turned out to be something of a revolution in using self-managing teams to manufacture memory chips.

Pete began to experiment with his idea shortly after being prompted to manage one of the plant’s production units (called a “fab”). He converted serial production lines, the standard work design in semiconductor manufacturing, into small teams, each with major responsibility for one part of the chip. Team members learned each others’ jobs, took on increasing responsibility for quality control, and were encouraged to do whatever needed to be done within the bounds of their limited authority to increase yield (i.e., the proportion of usable chips relative to the total number of starts).

Initial results were encouraging. Yields increased, production workers seemed pleased with their new responsibilities, and managers of other fabs began to take an interest in what Pete was doing. Then Pete called me up one day and said, “I think you ought to come out for a visit. There have been some interesting developments at the plant.” Whenever Pete called, I would come, as I was fascinated by what this home-taught manager was up to. It just happened that the corporate vice president for human resources was visiting the plant the same day that I was. And it just happened that we three found ourselves having coffee in Pete’s conference room, talking over what he was learning from his team experiment. As if scripted, I asked, “So how are the teams going?” “Big problems,” he responded. “Yields are great, but team members are noticing that *somebody* is making more money now than they used to—and it isn’t them.” I reacted as Pete no doubt knew I would. “This is serious. Unless you provide them some kind of rewards and recognition based on team performance, the whole thing could crater.” “Can’t do it,” he responded. “All I have to work with is an end-of-year bonus pool, and I can only use it to reward outstanding *individual* performers. Doing that could undermine the teams.”

The conversation followed the course that Pete no doubt had anticipated when he arranged for the vice president and me to visit on the same day. By the end of the meeting, he had obtained from the vice president an exception to corporate compensation policy that enabled him to offer his teams performance-contingent financial rewards. Over the next year, Pete did the same kind of thing with the plant's director of maintenance (so that all teams would have their own maintenance support persons who would get to know their particular equipment, and from whom they could learn how to perform basic maintenance tasks on their own) and with the director of engineering (so that engineers would consult with team leaders to arrange times for process tests that would not disrupt regular production work). Given that the corporation took its compensation policy quite seriously, and that both maintenance and engineering personnel stood much higher in the plant status hierarchy than did hired-off-the-street production workers, the special arrangements Pete negotiated were extraordinary political accomplishments.

The production teams continued to perform well, although their rate of improvement slowed considerably. And Pete still kept them on a relatively short leash, retaining unto himself decision-making authority about those matters he considered most important. Abramis and I finished up our research, which showed that although there was much to admire in what Pete had created, the teams were not really self-managing. And then, prompted by an economic downturn in the semiconductor industry, Pete finally decided to go all the way. The production teams, he declared, would now be called "asset management teams," and they would be given authority to manage all of their resources in pursuing collective objectives.

The transition to asset management teams was difficult, as transitions always are when decision-making authority and accountability for outcomes are altered. But eventually the changes "took," and performance measures for Pete's fab reached new highs. Indeed, his unit was more profitable than any comparable unit in the company, and he began receiving visitors not just from headquarters but also from managers at other high-technology manufacturing firms. By all measures, Pete had achieved a great success with his work teams.

Not long thereafter, I received another telephone call from him. "Probably you ought to come out for another visit," he said. "This time to say good-bye. They've decided that some changes need to be made in my area, and the main change is going to be me." It turned out that the human resources department recently had completed its annual employee attitude survey, and the job satisfaction of people in Pete's area had dropped from previous levels. That was the reason given to Pete for his termination. It was the only time in my many years of organizational research that I have heard of someone whose production numbers are at the top of the scale being fired because of a dip in scores on an attitude survey.

Pete went too far. Drawing both on his intuitive understanding of what it takes to make a great team and on his considerable political skill, he had succeeded in putting in place almost all of the conditions that are needed to foster work-team effectiveness. His work was revolutionary, and it was more than his organization could tolerate.

People get hurt in revolutions. Especially those who lead them. Even when they are successful.¹¹

Thinking Differently about Teams

Because creating and supporting work teams in organizations often requires the redirection of strong institutional forces, the activity is more appropriately viewed as revolutionary than as management-as-usual. Let me conclude this chapter by suggesting that both research on teams and competent leadership of them also require unconventionality in how one *thinks about* teams and the factors that affect their performance.

Scholars and organizational actors construe influences on work-team performance differently. We scholars want to know specifically what causes the performance outcomes that obtain. To find this out, we deconstruct the performance situation, first conceptually, and then empirically—perhaps in a laboratory experiment that isolates the suspected causal factors or using structural equation modeling with survey data. We want to rule out as many alternative explanations for the focal phenomenon as we can. We want to pin down the *true* causal agent.

Organizational actors, on the other hand, are not much interested in teasing out the relative influence of various possible causes of performance. Instead, they are prepared to draw upon all resources at their disposal to overdetermine outcomes in the direction they prefer. They welcome rather than shun both the confounding of variables (which is the bane of research that seeks to make unambiguous attributions about causality) and redundant causes (which is a sign, in scientific work, that concepts have not yet been specified clearly enough).

Although the preferences of scientists and practitioners do differ, they are not mutually exclusive. There is no a priori reason why one cannot generate models of social-system phenomena that are, at the same time, conceptually sound, capable of guiding constructive action, and amenable to empirical assessment and correction. The model of team performance described in this chapter was generated in that spirit. Rather than specify the main causes of group productivity (or provide a long list of all possible causes), I have proposed a small set of conditions that, when present, increase the chances—but by no means guarantee—that a group will develop into an effective performing unit.

To think about the conditions within which groups chart their own courses is very different from conventional scholarly models (in which the attempt is to link causes tightly to effects) as well as from action strategies that derive from those models (in which practitioners attempt to manage team processes more or less continuously in real time). As a metaphor, consider two alternative strategies that could be used by a

¹¹Pete spent several months in a corporate outplacement center looking for work, and eventually accepted a position as production manager at a box manufacturing plant in Mexico. Some months later, he moved back to the United States and shortly thereafter suffered a fatal heart attack.

pilot landing an aircraft. One strategy is to “fly the airplane down,” continuously adjusting heading, sink rate, and airspeed with the objective of arriving at the runway threshold just above stall speed, ready to flare the aircraft and touch down smoothly. A second strategy is to get the aircraft stabilized on approach while still far from the field, making small corrections as needed to heading, power, or aircraft configuration to keep the plane “in the groove.” It is well known among pilots that the safer strategy is the second one; indeed, when a pilot finds that he or she is in the first situation, the prudent action is to go around and try the approach again.¹²

To be stabilized on approach is to have the basic conditions established such that the natural course of events leads to the desired outcome—in this case, a good landing. The same way of thinking applies in many other domains of human endeavor. Consider, for example, constantly tinkering with a nation's interest rates, money supply, and tax policies versus getting fundamentally sound economic conditions in place and letting the economy run itself. Or micromanaging the development of a child versus creating a good family context that promotes healthy, autonomous development by the family's youngest member. Or managing a physical injury such as a moderately serious burn with surgery and multiple drugs versus fostering the general health of the patient and letting the body heal itself. Or trying to foster creativity by telling someone to “Be creative” and giving the person lots of creativity exercises versus providing a relaxing and resource-rich setting and letting the creative response appear when it will.

In all of these instances, the better strategy is to devote the first and greater portion of one's energies to establishing conditions that lead naturally to the desired outcomes and the lesser portion to on-line process management. The same considerations apply to the design and management of social systems, very much including work teams in organizations.

The implications for leaders and members of work teams are clear. Their first priority should be to get in place the basic conditions that foster team effectiveness. In this chapter, I have attempted to summarize what is known about those conditions, and I have pointed out that establishing and sustaining them is a far-from-routine undertaking in many existing organizations. Once the basic conditions are in place,

¹²Because I wanted to make sure that the technical details of this example were correct, I asked Jack Maher, a Delta Airlines captain, to review it. His response amplifies the point of the example: “The first strategy is typical of pilots who are new to an airplane. They tend to overcontrol because they are behind the airplane, see change too late, and make aggressive control inputs that are usually excessive. They cognitively tunnel on the control instruments and have a very limited ability to sense and process environmental cues. New pilots also tend to be procedure bound, which for them is safer. But if a pilot flies like that all the time, we know immediately he or she is weak, flying is a struggle, and the pilot is not having fun. The second strategy is where we like to be. In sports psychology it is called optimum flow, such as in basketball when you become one with the game. Although I joke about it with other pilots, I hum to myself during approach and landing to facilitate the state of flow. The nice result is that in this state I can see more of the environment and expand my cognitive ability to plan adaptive responses to future events. For example, in bad weather I envision the picture I expect to see when we break out of the clouds, I can see where a missed approach would take me, and if I lose an engine I know how I can modify the miss to get more performance out of the airplane and avoid terrain and obstacles.”

then leaders and members can “manage at the margins,” making small adjustments and corrections as needed to smooth a group’s progress toward its objectives. As Wageman (1996) has pointed out, dealing with emergent team problems and opportunities is manifold easier—and far more likely to be successful—if conditions favorable to team performance are already in place.

The challenge for social scientists is to take more seriously than we have heretofore the implications of thinking about social systems in terms of conditions rather than causes.¹³ Moreover, we need to find ways to study the evolution of social systems that do not destroy or caricature systemic phenomena in order to make them amenable to studying using conventional cause–effect conceptual models and research methodologies.

Both scholars and practitioners compromise their own espoused objectives when they hold constant conditions that may be among the most substantial influences on their phenomena of interest. Yet we regularly do this: Researchers do it to achieve experimental control, and practitioners do it to preserve established organizational structures and systems. Until both scholars and practitioners accept the risks of revolution and break out of traditional ways of construing and leading social systems, chapters such as this one will continue to be about why teams don’t work rather than why they do.

References

- Abramis, D. J. (1990). Semiconductor manufacturing team. In J. R. Hackman (Ed.), *Groups that work* (and those that don’t). San Francisco: Jossey-Bass.
- Alderfer, C. P. (1977). Group and intergroup relations. In J. R. Hackman & J. L. Suttle (Eds.), *Improving life at work*. Santa Monica, CA: Goodyear.
- Allmendinger, J., & Hackman, J. R. (1996). Organizations in changing environments: The case of East German symphony orchestras. *Administrative Science Quarterly*, *41*, 337–369.
- Bales, R. F., & Strodtbeck, F. L. (1951). Phases in group problem solving. *Journal of Abnormal and Social Psychology*, *46*, 485–495.
- Cohen, S. G., & Ledford, G. E., Jr. (1994). The effectiveness of self-managing teams: A quasi-experiment. *Human Relations*, *47*, 13–43.
- Cordery, J. L., Mueller, W. S., & Smith, L. M. (1991). Attitudinal and behavioral effects of autonomous group working: A longitudinal field study. *Academy of Management Journal*, *34*, 464–476.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*, 147–160.
- Foushee, H. C., Lauber, J. K., Baetge, M. M., & Acomb, D. B. (1986). Crew factors in flight operations: III. *The operational significance of exposure to short-haul air transport operations* (Technical Memorandum No. 88342). Moffett Field, CA: NASA–Ames Research Center.
- Freeman, J. (1973). The tyranny of structurelessness. In A. Koedt, E. Levine, & A. Rapone (Eds.), *Radical feminism*. New York: Quadrangle Books.

¹³Among possible leads for pursuing this possibility is the principle of “equifinality” set forth by systems theorists such as Daniel Katz and Robert Kahn (1978, p. 30), and the theory of multiple possibilities proposed by Leona Tyler (1983). Whereas equifinality alerts us to the fact that the same outcome can occur in response to many causes, multiple possibility theory posits that the same cause can generate a variety of outcomes. Taken together, the two notions offer an intriguing alternative to standard stimulus–response models in which situational causes are tightly linked to behavioral effects.

- Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, 31, 9–41.
- Ginnett, R. C. (1993). Crews as groups: Their formation and their leadership. In E. L. Wiener, B. G. Kanki, & R. L. Helmreich (Eds.), *Cockpit resource management*. Orlando, FL: Academic Press.
- Gunn, C. E. (1984). Workers' self-management in the United States. Ithaca, NY: Cornell University Press.
- Hackman, J. R. (1984). The transition that hasn't happened. In J. R. Kimberly & R. E. Quinn (Eds.), *New futures: The challenge of managing corporate cultures*. Homewood, IL: Dow Jones–Irwin.
- Hackman, J. R. (1985). Doing research that makes a difference. In E. E. Lawler, A. M. Mohrman, S. A. Mohrman, G. E. Ledford, & T. G. Cummings (Eds.), *Doing research that is useful for theory and practice*. San Francisco: Jossey-Bass.
- Hackman, J. R. (1986). The psychology of self-management in organizations. In M. S. Pallack & R. O. Perloff (Eds.), *Psychology and work: Productivity, change, and employment*. Washington, DC: American Psychological Association.
- Hackman, J. R. (Ed.). (1990). Groups that work (and those that don't). San Francisco: Jossey-Bass.
- Hackman, J. R. (1993). Teams, leaders, and organizations: New directions for crew-oriented flight training. In E. L. Wiener, B. G. Kanki, & R. L. Helmreich (Eds.), *Cockpit resource management*. Orlando, FL: Academic Press.
- Helmreich, R. L., & Foushee, H. C. (1993). Why crew resource management? Empirical and theoretical bases of human factors training in aviation. In E. L. Wiener, B. G. Kanki, & R. L. Helmreich (Eds.), *Cockpit resource management*. Orlando, FL: Academic Press.
- Jackson, P. R., Mullarkey, S., & Parker, S. (1994, January). *The implementation of high-involvement work teams: A four-phase longitudinal study*. Paper presented at the Occupational Psychology Conference of the British Psychological Society, Birmingham, UK.
- Janis, I. L. (1982). *Groupthink* (2nd ed.). Boston: Houghton Mifflin.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*. New York: Wiley.
- National Transportation Safety Board. (1994). *A review of flight crew-involved, major accidents of U.S. air carriers, 1978 through 1990*. Washington, DC: Author.
- Osburn, J. D., Moran, L., Musselwhite, E., & Zenger, J. H. (1990). *Self-directed work teams: The new American challenge*. Homewood, IL: Business One Irwin.
- Osterman, P. (1994). How common is workplace transformation and who adopts it? *Industrial and Labor Relations Review*, 47, 172–188.
- Poza, E. J., & Marcus, M. L. (1980, Winter). Success story: The team approach to work restructuring. *Organizational Dynamics*, 3–25.
- Roethlisberger, F. J., & Dickson, W. J. (1939). *Management and the worker*. Cambridge, MA: Harvard University Press.
- Steiner, I. D. (1972). *Group process and productivity*. New York: Academic Press.
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63, 384–399.
- Tyler, L. E. (1983). *Thinking creatively: A new approach to psychology and individual lives*. San Francisco: Jossey-Bass.
- Wageman, R. (1995). Interdependence and group effectiveness. *Administrative Science Quarterly*, 40, 145–180.
- Wageman, R. (1996). *A field study of leadership of self-managing teams: The effects of design choices and coaching*. Unpublished manuscript, Graduate School of Business, Columbia University, New York.
- Wall, T. D., Kemp, N. J., Jackson, P. R., & Clegg, C. W. (1986). Outcomes of autonomous work groups: A long-term field experiment. *Academy of Management Journal*, 29, 280–304.
- Walton, R. E. (1980). Establishing and maintaining high commitment work systems. In J. R. Kimberly & R. H. Miles (Eds.), *The organizational life cycle*. San Francisco: Jossey-Bass.
- Walton, R. E. (1985). From control to commitment: Transformation of workforce management strategies in the United States. In K. B. Clark, R. H. Hayes, & C. Lorenz (Eds.), *The uneasy alliance: Managing the productivity–technology dilemma*. Boston: Harvard Business School Press.
- Zucker, L. G. (1977). The role of institutionalization in cultural persistence. *American Sociological Review*, 42, 726–743.