

A THEORY OF TEAM COACHING

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After briefly reviewing the existing literature on team coaching, we propose a new model with three distinguishing features. The model (1) focuses on the *functions* that coaching serves for a team, rather than on either specific leader behaviors or leadership styles, (2) identifies the specific *times* in the task performance process when coaching interventions are most likely to have their intended effects, and (3) explicates the *conditions* under which team-focused coaching is and is not likely to facilitate performance.

Coaches help people perform tasks. Coaching is pervasive throughout the life course, from childhood (e.g., a parent helping a child learn to ride a tricycle), through schooling (e.g., a teacher coaching a student in the proper conduct of a chemistry experiment), and into adulthood (e.g., a fitness coach helping with an exercise regime or a supervisor coaching an employee in improving his or her job performance). The main body of research about coaching is found in the training literature, and it focuses almost entirely on individual skill acquisition (Fournies, 1978). Except for the many popular books and articles that extract lessons for team leaders from the experiences of athletic coaches, relatively little has been published that specifically addresses the coaching of task-performing teams.

Here we propose a theory of team coaching that is amenable to empirical testing and correction. The theory has three distinguishing features. One, it focuses on the *functions* that coaching serves for a team, rather than on either specific leader behaviors or leadership styles. Two, it explicitly addresses the specific *times* in the task performance process when coaching interventions are most likely to “take” and have their intended effects. Three, it explicitly identifies the *conditions* under which team-focused coaching is most likely to facilitate performance. Overall, we show that the impact of team coaching—whether provided by a formal team leader or by fellow group members—depends directly and substantially on the degree to which the proper coaching functions are fulfilled competently at appropriate times and in appropriate circumstances.

TEAM COACHING

Team coaching is an act of leadership, but it is not the only one or necessarily the most consequential one. Team leaders engage in many different kinds of behaviors intended to foster team effectiveness, including structuring the team and establishing its purposes, arranging for the resources a team needs for its work and removing organizational roadblocks that impede the work, helping individual members strengthen their personal contributions to the team, and working with the team as a whole to help members use their collective resources well in pursuing team purposes.

Leaders vary in how they allocate their time and attention across these activities, depending on their own preferences; what they believe the team most needs; and the team’s own level of authority, initiative, and maturity. Only the last two sets of activities (helping individual members strengthen personal contributions and working with the team to help use resources well) are coaching behaviors, however, focusing respectively on individual team members and on the team as a whole. In this paper we deal exclusively with the fourth—team coaching—which we define as *direct interaction with a team intended to help members make coordinated and task-appropriate use of their collective resources in accomplishing the team’s work*.

Although team coaching is a distinct and often consequential aspect of team leadership, recent evidence suggests that leaders focus their behavior less on team coaching than on other aspects of the team leadership portfolio. In a

study of 268 task-performing teams in 88 organizations, we (Wageman, Hackman, & Lehman, 2004) asked team leaders and members to rank the amount of attention the team leader gave to activities in each of the four categories listed above (with a rank of "1" signifying the greatest attention). For both leader and member reports, coaching the team as a whole came in last (the combined mean ranks were as follows: structuring the team and its work, 1.75; running external interference, 2.16; coaching individuals, 2.88; and coaching the team, 3.02).

The lesser attention given to team coaching could simply mean that leaders underestimate the potential benefits of providing coaching assistance to their teams. More likely, perhaps, is that leaders do not coach their teams because they do not know how to do so, or they have ventured a coaching intervention or two that did not help and thereafter focused their behavior on seemingly more promising team leadership strategies. By using existing research and theory to identify the kinds of leader coaching behaviors that do help teams operate more effectively, we seek here not only to advance basic understanding about team coaching but also to provide practitioners with some of what they need to know to coach their teams competently.

EXISTING APPROACHES

In a review of existing research and theory, we identified three conceptually driven approaches to team coaching and one eclectic approach that is largely atheoretical. These four approaches, described below, point the way toward a more comprehensive research-based model of team coaching, and we draw on them in developing propositions for the present theory.

Eclectic Interventions

Eclectic coaching interventions are activities that derive from no particular theoretical perspective but have considerable face validity nonetheless, in that a lay person would be likely to assume that they would help a team perform well. Eclectic models are found mainly in the practitioner literature as codifications of the lessons learned by management consultants whose practice includes team facilitation (e.g., Fischer, 1993; Kinlaw, 1991; Wellins, Byham, &

Wilson, 1991). Although varied, these models specify ways that team leaders can develop members' interpersonal skills, define members' roles and expectations, deal with conflict and interpersonal frictions, and help a team achieve a level of "maturity" that lessens the team's dependence on its leader (Eden, 1985; Fischer, 1993; Geber, 1992; Manz & Sims, 1987; Patten, 1981; Rees, 1991; Torres & Spiegel, 2000; Woodman & Sherwood, 1980).

Process Consultation

The process consultation approach developed by Schein (1969, 1988) posits that competent interpersonal relations are essential for effective task performance and that group members themselves must be intimately involved in analyzing and improving those relationships. The consultant engages team members in analyzing group processes on two levels simultaneously: (1) the substantive level—to analyze how human processes are affecting work on a specific organizational problem—and (2) the internal level—to better understand the team's own interaction processes and the ways that team processes foster or impede effective group functioning (Schein, 1988: 11–12). Decidedly clinical in orientation, this type of coaching requires the process consultant first to directly observe the group as it works on a substantive organizational problem and then, once the group is ready, to introduce systematic or confrontive interventions intended to help the team deal with its problems and exploit previously unrecognized opportunities.

Behavioral Models

Two distinct models of team coaching are based on theories of individual behavior: (1) the application of Argyris's (1982, 1993) theory of intervention to team-focused coaching by Schwarz (1994) and (2) applications of operant conditioning to the modification of team behavior, notably those of Komaki (1986, 1998) and her colleagues.

In his approach, Schwarz posits that coaches should provide feedback to a team in ways that help members learn new and more effective team behaviors, especially in how they give and receive feedback. The coaching process involves three phases. First is observing actual

group behavior both to note behaviors that are impeding the group's work and to identify behaviors not presently exhibited that might facilitate group work. Second is describing to the group what has been observed and testing inferences about the meanings of those behaviors. And third is helping group members decide whether they wish to change their behaviors and, if so, how they might do so. The model specifies several specific ground rules both for the facilitators' behaviors and for team members' behaviors, such as providing specific behavioral examples for points made, publicly testing assumptions and inferences, and explicitly inviting questions and challenges.

The operant conditioning approach to team coaching is based on the well-established principle of individual learning that behavior is a function of its consequences. Applied to teams, operant coaching involves three kinds of coaching behaviors: (1) providing instructions about how to behave, (2) monitoring the team's performance, and (3) providing performance-contingent consequences to the team (Komaki, 1986; Smith, Smoll, & Curtis, 1979). Because the operant approach to team coaching does not specify any particular patterns of team interaction that facilitate effectiveness across different types of teams and tasks, team coaches must have extensive task knowledge so that they can issue proper instructions about desirable behaviors and reinforce the team when it does well (Komaki, 1998; Komaki, Deselles, & Bowman, 1989; Komaki & Minnich, 2002; Smoll & Smith, 1989).

Developmental Coaching

The distinguishing feature of the developmental approach to coaching is the central role given to time and timing. Two premises on which this approach is based are (1) that teams need help with different issues at different stages of their development and (2) that there are times in the life cycles of groups when they are more and less open to intervention (Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996; Kozlowski, Gully, Salas, & Cannon-Bowers, 1996).

A key coaching intervention in the developmental approach is the "learning session," in which the coach and team members review the team's purpose, assess its progress thus far, and

identify the issues the team needs to deal with next. The focus of learning sessions for newly formed or "novice" groups (whose members are mainly occupied with social issues of inclusion and acceptance and task issues having to do with team goals and with member skills and roles) differs from that for more mature or "expert" groups (whose members have become ready to learn strategies for self-regulation, such as how best to detect and correct errors and how best to adapt to changing external demands). Because teams are unlikely to be able to process intensive interventions when task demands are also high, learning sessions are reserved for periods of relatively low cognitive demand. During intensive work periods, developmental coaches focus mainly on gathering data about behavior and performance for use guiding subsequent interventions. When task demands diminish, active coaching resumes.

Summary

Most of the approaches to team coaching just summarized are based on well-established psychological principles and findings about human learning and performance. Moreover, research conducted within each tradition has been informative and, especially for the operant and developmental approaches, has generated empirical findings that enrich our understanding about coaching processes and outcomes. None of the existing approaches, however, is supported by evidence that addresses all links in the coaching intervention-team process-team performance sequence. We seek here to provide a conceptual model that does explicate all links in that sequence, that takes explicit account of teams' temporal and organizational contexts, and that provides a sound basis for generating guidance for team coaching practice.

DOMAIN

We begin by specifying what we mean by a work team and what we mean by performance effectiveness, which together bound the domain of our model.

Work Teams

We focus only on full-fledged teams that perform tasks in social system contexts. Such teams

have three features. First, they are *real* groups. That is, they are intact social systems, complete with boundaries, interdependence among members, and differentiated member roles (Alderfer, 1977). Members of real groups can be distinguished reliably from nonmembers, they are interdependent for some common purpose, and they invariably develop specialized roles within the group. Real groups can be either small or large and either temporary or long-lived.

Second, work teams have one or more *group tasks* to perform. They produce some outcome for which members bear collective responsibility and for which acceptability is potentially assessable. The kind of outcome produced is not critical—it could be a physical product, a service, a decision, a performance, or a written report. Nor is it necessary that the outcome actually be assessed; all that is required is that the group produce an outcome that can be identified as its product and that it be theoretically possible to evaluate that product. Social groups and other collectives that generate no identifiable product fall outside our domain.

Finally, work teams operate in a *social system context*. The team as a collective manages relationships with other individuals or groups in some larger social system. Usually this social system is the parent organization that created the team, but it can be people or groups outside that organization as well, such as opponents for an athletic team or customers for a service-providing team. What is critical is that team members be collectively responsible for managing consequential transactions with other individuals and/or groups.

Team Performance Effectiveness

Criterion measures in empirical research on team performance often consist of whatever quantitative indicators happen to be available or are easy to obtain (e.g., production figures for industrial workgroups or number of correct responses for teams studied in experimental laboratories). Such criteria of convenience do not address other outcome dimensions, such as client assessments of a team's work, the degree to which a team becomes stronger as a performing unit over time, or the extent to which individual members become more knowledgeable or skilled as a result of their team experiences.

Because we believe that these dimensions also are consequential for any team's long-term organizational performance, we define team effectiveness using the following three-dimensional conception (adapted from Hackman, 1987).

1. The productive output of the team (i.e., its product, service, or decision) meets or exceeds the standards of quantity, quality, and timeliness of the team's clients—the people who receive, review, and/or use the output. It is the clients' standards and assessments that count in assessing team products—not those of the team itself (except in rare cases where the team is the client of its own work) or those of the team's manager (who only rarely is the person who actually receives and uses a team's output).
2. The social processes the team uses in carrying out the work enhance members' capability of working together interdependently in the future. Effective teams become adept at detecting and correcting errors before serious damage is done and at noticing and exploiting emerging opportunities. They are more capable performing units when they finish a piece of work than when they began.
3. The group experience contributes positively to the learning and personal well-being of individual team members. Work teams can serve as sites for personal learning and can spawn satisfying interpersonal relationships, but they also can deskill, frustrate, and alienate their members. We do not count as effective any team for which the net impact of the group experience on members' learning and well-being is more negative than positive.

Although the three criteria vary in importance in different circumstances, effective teams balance them over time, never completely sacrificing any one to achieve the others. In the pages that follow, we identify the coaching functions, the temporal imperatives, and the contextual circumstances that affect the degree to which coaching behaviors can help a work team achieve and sustain a high standing on all three of the criteria.

FUNCTIONS

Over four decades ago, McGrath first suggested that "[The leader's] main job is to do, or get done, whatever is not being adequately handled for group needs" (1962: 5). If a leader manages, by whatever means, to ensure that all

functions critical to group performance are taken care of, the leader has done his or her job well. Thus, a functional approach to leadership leaves room for an indefinite number of ways to get key group functions accomplished, and avoids the necessity of delineating all the specific behaviors or styles a leader should exhibit in given circumstances—a trap into which it is easy for leadership theorists to fall.

What functions are most critical for team performance effectiveness? Functions whose accomplishment are critical for group decision making have been identified by Hirokawa and Orlitzky (Hirokawa, 1985; Orlitzky & Hirokawa, 2001), and those that bear on other aspects of group behavior have been comprehensively reviewed by Hollingshead et al. (in press). For our specific and delimited purposes—that is, identification of the most critical functions served by those who coach work teams—we focus on three aspects of group interaction that have been shown to be especially potent in shaping group performance outcomes (Hackman & Morris, 1975; Hackman & Walton, 1986).

Specifically, we posit that team effectiveness is a joint function of three performance processes: (1) the level of *effort* group members collectively expend carrying out task work, (2) the appropriateness to the task of the *performance strategies* the group uses in its work,¹ and (3) the amount of *knowledge and skill* members bring to bear on the task. Any team that expends sufficient effort in its work, deploys a task-appropriate performance strategy, and brings ample talent to bear on its work is quite likely to achieve a high standing in the three criteria of work team effectiveness specified earlier. By the same token, teams that operate in ways that leave one or more of these functions unfulfilled—that is, where members expend insuffi-

cient effort, use inappropriate strategies, and/or apply inadequate talent in their work—are likely to fall short in one or more of the effectiveness criteria.

Associated with each of the three performance processes are both a characteristic “process loss” (Steiner, 1972) and an opportunity for positive synergy, which we call a “process gain.” That is, members may interact in ways that depress the team’s effort, the appropriateness of its strategy, and/or the utilization of member talent; alternatively, their interaction may enhance collective effort, generate uniquely appropriate strategies, and/or actively develop members’ knowledge and skills.

Coaching functions are those interventions that inhibit process losses and foster process gains for each of the three performance processes. Coaching that addresses effort is *motivational* in character; its functions are to minimize free riding or “social loafing” and to build shared commitment to the group and its work. Coaching that addresses performance strategy is *consultative* in character; its functions are to minimize mindless adoption or execution of task performance routines in uncertain or changing task environments and to foster the invention of ways of proceeding with the work that are especially well aligned with task requirements. Coaching that addresses knowledge and skill is *educational* in character; its functions are to minimize suboptimal weighting of members’ contributions (i.e., when the weight given to individual members’ contributions is at variance with their actual talents) and to foster the development of members’ knowledge and skill.

The three coaching functions specifically and exclusively address a team’s task performance processes—not members’ interpersonal relationships. This focus distinguishes our model from the great majority of writing and practice about team coaching, especially in the eclectic tradition, which posits (sometimes explicitly but more often implicitly) that coaching interventions should primarily address the quality of members’ interpersonal relationships.

The pervasive emphasis on interpersonal processes in the team performance literature reflects a logical fallacy about the role of those processes in shaping performance outcomes. To illustrate, consider a team that is having performance problems. Such teams often exhibit inter-

¹ A team’s strategy is the set of choices members make about how to carry out the work. For example, a manufacturing team might decide to divide itself into three subgroups, each of which would produce one subassembly, with the final product to be assembled later. Or a basketball team might decide to use modified zone defense, with one player assigned to guard the opposing team’s best shooter. Or a team performing a task that requires a creative solution might choose to free associate about possible solutions in the first meeting, reflect for a week about the ideas that came up, and then reconvene to draft the product. All of these are choices about task performance strategy.

personal difficulties, such as communications breakdowns, conflict among members, leadership struggles, and so on. Because both lay persons and scholars implicitly rely on an input-process-output framework in analyzing group dynamics, it is natural to infer that the observed interpersonal troubles are *causing* the performance problems and, therefore, that a good way to improve team performance would be to fix them. As reasonable as this inference may seem, it is neither logical nor correct. Although serious interpersonal conflicts sometimes do undermine team performance (Jehn & Mannix, 2001), it does not necessarily follow that the proper coaching intervention in such cases is to help members improve their interpersonal relationships.

In fact, research suggests that, in some circumstances, the causal arrow points in the opposite direction—that is, performance drives interpersonal processes (or, at least, perceptions of those processes), rather than vice versa. For example, Staw (1975) gave task-performing teams false feedback about their performance and then asked members to provide “objective” descriptions of how members had interacted. Teams randomly assigned to the high performance condition reported more harmonious and better communications, among other differences, than did groups assigned to the low performance condition (see also Guzzo, Wagner, Maguire, Herr, & Hawley, 1986).

Doubt also is cast on interpersonal approaches to coaching by action research that seeks to improve team performance by improving the quality of members’ interactions. Some of these studies use interventions based on the process consultation approach to coaching reviewed earlier; others employ a broader set of interventions that generally are referred to as *team building* or *group development* activities. Although interventions that address members’ relationships and interaction can be quite engaging and do affect members’ attitudes, they do not reliably improve team performance (for reviews, see Kaplan, 1979; Salas, Rozell, Mullen, & Driskell, 1999; Tannenbaum, Beard, & Salas, 1992; Woodman & Sherwood, 1980). Moreover, those experimental studies that have directly compared teams given task-focused and interpersonally focused interventions have found the

former to significantly outperform the latter (Kernaghan & Cooke, 1990; Woolley, 1998).²

Proposition 1: Coaching interventions that focus specifically on team effort, strategy, and knowledge and skill facilitate team effectiveness more than do interventions that focus on members’ interpersonal relationships.

TIMING

The efficacy of coaching interventions depends not just on their focus, as discussed above, but also on the time in the group’s life cycle when they are made. Regularities in group life cycles have been explored empirically for many decades, beginning with Bales and Strodtbeck’s (1951) classic study of phases in group problem solving. In a number of conceptual frameworks, scholars have sought to summarize research findings about group development, the most prominent being the “forming-storming-norming-performing” model proposed by Tuckman (1965). Almost all of these frameworks have treated group development as following a fixed set of stages, with each successive stage being contingent on successful completion of the prior one.

In recent years, research on temporal issues in group behavior has raised doubt about the generality and validity of stage models (Ancona & Chong, 1999; Gersick, 1988; Ginnett, 1993; McGrath & Kelly, 1986; Moreland & Levine, 1988; for a recent attempt to reconcile alternative temporal models, see Chang, Bordia, & Duck, 2003). Gersick’s findings are particularly relevant for our purposes. In a field study of the life histories of a number of project teams whose performance periods ranged from several days to several months, Gersick (1988) found that each of the groups she tracked developed a distinctive approach toward its task as soon as it commenced work, and each stayed with that approach until precisely halfway between its first meeting and its project deadline. At the midpoint of their

² Woolley’s main effect finding was significantly conditioned by the timing of the intervention, and the Kernaghan and Cook finding was obtained only for groups composed of members with ample task-relevant abilities. We discuss the moderating effects of timing and of group design on the impact of coaching interventions later.

lives, almost all teams underwent a major transition. In a concentrated burst of changes, they dropped old patterns of behavior, reengaged with outside supervisors, and adopted new perspectives on their work.³ Following the midpoint transition, groups entered a period of focused task execution, which persisted until very near the project deadline, at which time a new set of issues having to do with termination processes arose and captured members' attention. Gersick (1989) subsequently replicated these findings in the experimental laboratory for groups that all had the same amount of time to complete their task (for alternative views of temporal dynamics in task-performing groups, see Seers & Woodruff, 1997, and Waller, Zellmer-Bruhn, & Giambatista, 2002).

Gersick's findings about the natural developmental processes of task-performing groups raise the possibility, consistent with both the process consultation and developmental approaches to team coaching previously summarized, that the *readiness* of work teams for coaching interventions changes systematically across their life cycles. By "readiness for coaching" we mean (1) the degree to which the issues to be addressed are among those naturally on team members' minds at the time of the intervention, coupled with (2) the degree to which the team as a whole is not at that time preoccupied with more pressing or compelling matters.

We posit that coaching interventions are more effective when they address issues a team is ready for at the time they are made and, moreover, that readiness varies systematically across the team life cycle. In contrast, even competently administered interventions are un-

likely to be helpful if they are provided at a time in the life cycle when the team is not ready for them. Indeed, ill-timed interventions may actually do more harm than good by distracting or diverting a team from other issues that do require members' attention at that time. We next discuss the kinds of interventions that are most appropriate at the beginnings, midpoints, and ends of work team life cycles.

Beginnings

When team members first come together to perform a piece of work, the most pressing piece of business, both for members and for the team as a whole, is for them to get oriented to one another and to the task in preparation for the start of actual work. This involves establishing the boundary that distinguishes members from nonmembers, starting to differentiate roles and formulate norms about how members will work together, and engaging with (and, inevitably, redefining) the group task. These activities, which involve simultaneous engagement with the interpersonal and task issues that dominate the start-up of any social system, create a high state of readiness for anything that shows promise of reducing members' uncertainties and helping them get off to a good start. A coaching intervention that helps a group have a good "launch," therefore, can significantly enhance members' commitment to the team and the task, and thereby enhance their motivation to perform the work of the team as well as they can.

The power and persistence of coaching behaviors at the launch of a task-performing team are affirmed by Ginnett's (1993) study of the behavior of airline captains during the first few minutes of a newly formed crew's life. The structural "shell" within which cockpit crews work is quite detailed: the aircraft to be flown, where it is to be flown, the roles of each crew member, basic work procedures such as checklists, and much more all are prespecified and well understood by all crewmembers. Therefore, a new crew should be able to proceed with its work without spending time getting organized, which is, in fact, what happens if a captain does not conduct a launch briefing when the crew first meets.

Consistent with Gersick's results, Ginnett (1993) found that what happened in the first few minutes of crewmembers' time together carried

³ In Gersick's research it was not clear whether the midpoint transition was prompted externally (i.e., by reference to a clock or calendar) or internally (i.e., by members' sense that about half their allotted time had elapsed). Mann (2001) investigated this question experimentally by having groups work in a room with a clock that ran normally, in one where the clock ran one-third faster than normal (i.e., when thirty minutes had passed, the clock showed that forty minutes had elapsed), or in one where the clock ran one-third slower than normal (i.e., at the thirty-minute mark it showed twenty minutes). Groups with the normal clock experienced a single midpoint transition, replicating earlier findings. But groups with the faster and slower clocks exhibited two such transitions—one at the midpoint indicated by the clock and the other at the actual midpoint of the allotted time—showing that groups pace their work in response to both internal and external cues about elapsed time.

forward throughout a significant portion of the crew's life. Crews led by captains who merely took the time in their preflight briefings to affirm the positive features of the crew shell fared better than those whose captains gave no briefing at all or those whose captains undermined the standard shell. Best of all were crews whose captains went beyond mere affirmation and actively elaborated the shell—identifying, commenting on, and engaging their crews in a discussion of the unique circumstances of the trip that was about to begin. These captains transformed a highly competent set of individual pilots into a motivated flight crew.

Because most work teams do not have structures as detailed and elaborate as those of cockpit crews, what happens as members come together and come to terms with their work should shape their trajectories even more profoundly than was the case for Ginnett's crews. Beginnings provide a unique opportunity for motivational coaching interventions that breathe life into a team's structural shell—no matter how rudimentary or how elaborate that shell may be—and thereby help get a team off to a good start with high motivational engagement by all members.

In contrast, and perhaps surprisingly, beginnings are *not* good times to help teams formulate work strategy. When they are just starting out, teams are not yet ready to address questions of strategy, as Hackman, Brousseau, and Weiss (1976) inadvertently discovered in an experimental study of team performance. These researchers asked a subset of participating teams to take a few minutes to reflect on their performance strategy—that is, to consider various ways of carrying out the task—before actually starting work on it. The investigators hypothesized that these teams would perform better than teams that were encouraged to plunge immediately into the work—but only on tasks for which the most obvious and natural way of proceeding was not the optimum task performance strategy.

To test their hypothesis, the researchers structured their experimental task in two different ways. In one version of the task, the most obvious and natural way of proceeding was, in fact, optimum for team performance; in a second version, that way of proceeding would introduce inefficiencies and result in suboptimal performance. As expected, the "plunge right in"

groups did better than the "discuss your strategy first" groups on the version of the task for which the obvious way of proceeding was the optimum strategy, and the reverse was true when the obvious way of proceeding was suboptimal.

Perhaps the most significant finding of the study, however, is buried in the discussion section of the research report—namely, that it was nearly impossible to get the experimental groups to actually *have* a discussion of performance strategy at the start of the work period. Only by structuring the strategy intervention as a "preliminary task" and explicitly requiring the team to check off each step as it was completed could the experimental groups be induced to have more than a perfunctory discussion of their performance strategy at the beginning of the work period. Beginnings are not a good time for strategy discussions, but, as will be seen next, midpoints are.

Midpoints

A second window for coaching interventions opens around the midpoint of the team's work. At that point the team has logged some experience with the task, providing data for members to use in assessing what is working well and poorly. Moreover, the team is likely to have experienced an upheaval, driven in part by members' anxieties about the amount of work they have accomplished relative to the time they have remaining, that opens the possibility of significant change in how the team operates (Gersick, 1988, 1989). For these reasons, readiness for a strategy-focused coaching intervention is high at the temporal midpoint of a team's work.

We posit that ongoing teams having no deadline, and therefore no temporal midpoint, also experience increased readiness for strategy-focused interventions when they are about half-way finished with the work—for example, when they have consumed half of their available resources, have progressed halfway to their goal, or have arrived at some other natural break point in the work. At that time members are more likely than previously to welcome and be helped by interventions that encourage them to assess their work progress, to review how they are applying members' efforts and talents to the work, and to consider how they might want to

alter their task performance strategies to better align them with external requirements and internal resources.

The increased receptivity to coaching interventions that encourage reflection on team work strategies by teams that have logged some experience, relative to those that are just starting out, is a tenet of developmental theories of team coaching (e.g., Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996) and is empirically supported by the findings of Woolley (1998), mentioned earlier. Woolley created an experimental version of an architectural task that involved constructing a model of a college residence hall out of LEGO® bricks. Groups were informed in advance how the structures they created would be evaluated (criteria included sturdiness, aesthetics, and various technical indices). She devised two coaching-type interventions—one intended to improve members' interpersonal relationships and one that provided assistance to the team in developing a task-appropriate performance strategy. Each team received only one intervention, administered either at the beginning or at the midpoint of its work period.

Woolley's findings, shown in Figure 1, confirm that strategy interventions are especially helpful when they come near the midpoint of a team's work cycle. When the strategy intervention was provided at the beginning of the work period, it did not help, further affirming that members need to log some experience before they are ready to have a useful discussion of

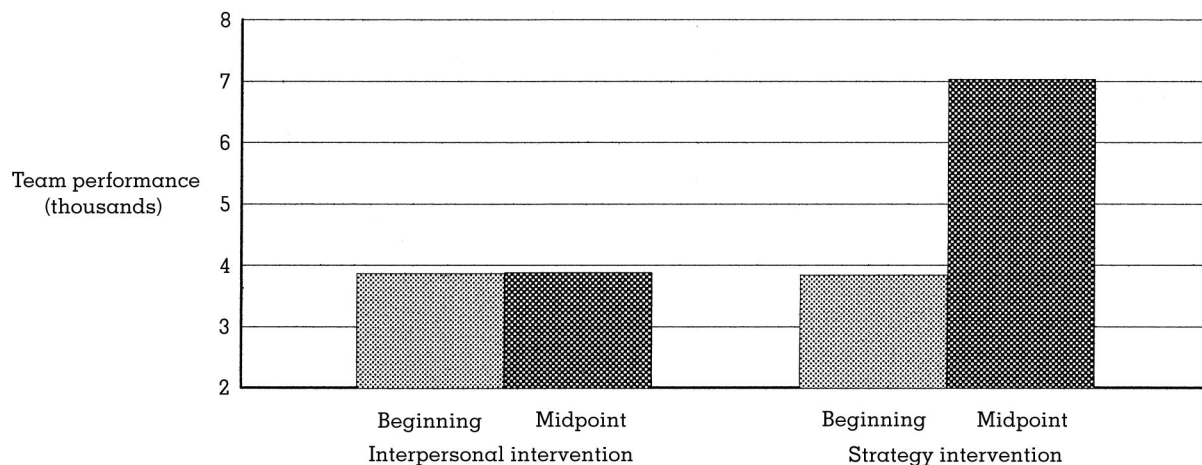
how best to proceed with their work. This conclusion deals specifically with the timing of external interventions intended to foster team strategy planning. When work teams spontaneously engage in planning activities in their initial team meetings, process management norms sometimes emerge that are subsequently helpful in pacing and coordinating team activities (Janicik & Bartel, 2003).

In both the Woolley (1998) study and the experiment by Hackman et al. (1976) described earlier, it was difficult but possible to introduce a strategy-focused intervention at the beginning of a task cycle. In other cases it is impossible to do so. Total quality management programs, for example, involve use of such techniques as Pareto analyses, control charts, and cost-of-quality analyses to develop improved production strategies (for details, see Hackman & Wageman, 1995). These techniques simply cannot be used until a record of experience with existing strategies has been amassed—once again affirming that consultative coaching is more appropriately provided around the middle of a task cycle than at its beginning.

Ends

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 (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996). The end of a task cycle is

FIGURE 1
Woolley's Findings About the Focus and Timing of Coaching



Adapted from Woolley (1998).

the time when a team has as much data as it is likely to get for members to use in exploring what can be learned from the collective work just completed. Moreover, a team is likely to be far more ready at this point than previously to capture and internalize the lessons that can be learned from their work experiences, for several reasons. The anxieties that invariably surface in getting a piece of work organized, executed, and finished on time dissipate once that work is completed—significant, because people do not learn well when brimming with anxieties (Edmondson, 1999; Zajonc, 1965). Moreover, once the task has been finished, there often is *time* for reflection, which typically is in short supply in the rush to completion. The postperformance period, therefore, is an especially inviting time for educational coaching interventions (see also Blickensderfer, Cannon-Bowers, & Salas, 1997; Butler, 1993; Ellis, Mendel, Nir, & Davidi, 2002). Such interventions not only build the team's reservoir of talent, which increases its performance capabilities for subsequent tasks, but also contribute directly to the personal learning of individual team members.

Absent coaching interventions, team members are not likely to take initiatives after the work has been completed to capture and internalize the lessons that could be learned from their experiences. If the team has succeeded, members may be more interested in celebrating than in reflecting, and if it has not, they may be driven more to rationalize why the failure was not really their fault than to explore what might be learned from it. Moreover, even if members do take the time to reflect on possible explanations for the team's level of performance, coaching may be required to bring those explanations into alignment with reality.

In a field study of team attribution-making processes, Corn (2000) collected a diverse sample of task-performing teams in organizations, some of which had performed well and some of which had not, and asked members of each team to explain why the team had performed as it did. The majority of those explanations focused on the behaviors or dispositions of individual members or of the team leader. This attributional bias diverts members' attention from the ways that less salient structural or contextual factors may have shaped their interaction and performance. Moreover, it invites the psychodynamic phenomenon of "splitting," which

can result in having leaders assigned a disproportionate share of the credit for team successes and minority members a disproportionate share of the blame for team failures (Smith & Berg, 1987: Chapter 4). Competent, well-timed coaching can help members work through such impulses and generate collective learning that strengthens the team's capabilities as a task-performing unit.

Summary

We have seen that work teams are especially open to coaching interventions at three times in the group life cycle: (1) at the beginning, when a group is engaging with its task; (2) at the midpoint, when half the allotted time has passed and/or half the work has been done; and (3) at the end, when a piece of work has been finished. Moreover, each of the three coaching functions discussed in the previous section of this article is uniquely appropriate at one of those three times: motivational coaching at beginnings, consultative coaching at midpoints, and educational coaching at ends.

The time dependence of the coaching functions is summarized in our second proposition.

Proposition 2: Each of the three coaching functions has the greatest constructive effect at specific times in the team task cycle. Specifically, (a) motivational coaching is most helpful when provided at the beginning of a performance period, (b) consultative coaching is most helpful when provided at the midpoint of a performance period, and (c) educational coaching is most helpful when provided after performance activities have been completed.

This proposition could be viewed as suggesting that coaching is irrelevant or ineffectual during the great majority of a team's time—that is, in the extended periods that lie between its beginning, midpoint, and end. It is true that teams are remarkably impervious to interventions, made during times of low readiness, that seek to alter their established trajectories. Even so, it often is possible for coaching to make small but significant contributions to the team and its work during between-marker periods.

One such contribution is to help members coordinate their activities and thereby minimize the risks of tacit coordination identified by Wittenbaum, Vaughan, and Stasser (1998). Leaders who take on too much of the responsibility for coordination do run the risk of becoming so involved in the actual work that they overlook opportunities to help the team develop into an increasingly competent performing unit. And team members may eventually abdicate to the leader their own responsibilities for managing team performance processes. Still, when task complexity is very high and/or when members are relatively inexperienced, helping members coordinate their activities can be an appropriate and helpful coaching intervention.

A second kind of between-marker coaching that can be helpful to work teams is the use of operant techniques to reinforce constructive but infrequently observed team behaviors, such as verbally reinforcing a team for exhibiting good work processes (Komaki et al., 1989). Consistent with the tenets of the operant model of team coaching summarized earlier, these initiatives can both increase the frequency of desirable behaviors and decrease the frequency of undesirable behaviors. However, such initiatives may be especially helpful for teams whose basic performance processes—that is, their management of team effort, strategy, and talent—are already strong. Even well-designed and well-executed reinforcement of desirable team behaviors cannot compensate for the absence of well-timed motivational, consultative, and educational coaching interventions.

Most of the research evidence supporting the proposition that teams are especially open to motivational, consultative, and educational interventions at their beginnings, midpoints, and ends comes from teams that have a single task to complete by a specified deadline. The task cycles of such teams are coincident with their life cycles, and, therefore, temporal markers are easy to identify. For many work teams in organizations, however, tasks and deadlines are not so clear and well defined. For example, some teams have multiple tasks to perform, perform the same task multiple times, or have work that requires members to manage multiple task cycles simultaneously in the service of larger performance goals (Marks, Mathieu, & Zaccaro, 2001). Opportunities for temporally appropriate

coaching interventions are abundant for such teams, because they experience multiple beginnings, midpoints, and ends.

Still other teams operate continuously, without any official beginnings or ends whatsoever. Many industrial production teams, for example, keep on turning out the same products month after month, indefinitely into the future. Even teams with continuous tasks, however, usually have beginnings, midpoints, and ends. They have them because the teams, or their managers, create them.

There appears to be a human compulsion to create temporal markers, even when no such markers are actually needed. In a semiconductor manufacturing plant that operated continuously all year (except for an annual holiday break when the entire plant closed down), for instance, production activities were organized around six-week performance periods, and team dynamics were highly responsive to the beginnings, midpoints, and ends of these entirely arbitrary temporal markers (Abramis, 1990; Hackman, 2002). The creation of quarters to demark financial reporting periods and semesters (or quarters) to organize educational activities in schools have the same character: they are arbitrary but nonetheless powerful in shaping the rhythm of collective activity.

Temporal rhythms are deeply rooted in human experience, and if temporal markers are not naturally provided (e.g., through human biology or seasonal cycles), we create them and then use them to pace our activities. Such markers identify the beginnings, midpoints, and ends of team life cycles, and they thereby create opportunities for coaching interventions that otherwise would not exist.

CONDITIONS

The impact of motivational, consultative, and educational coaching depends not just on the time in the task cycle at which interventions are made but also on the degree to which two other conditions are in place. The first of these conditions is the degree to which key performance processes are externally constrained, and the second is the degree to which the group itself is a well-designed performing unit.

Task and Organizational Constraints

Not all of the coaching functions specified here are salient for all team tasks, since for some tasks only one or two of the three performance processes drive performance outcomes. For an arithmetic task with a self-confirming answer, for example, the performance of a team that has accepted and engaged with its task is almost entirely a function of the knowledge and skill its members apply in their work. In contrast, performance on a simple, self-paced production task, such as moving materials from one place to another, is almost entirely a function of the level of effort members expend.

Thus, if one of the three performance processes is constrained (i.e., if variation in that process is controlled or limited by the task or the organization), then any attempts by members to manage that particular process will be ineffectual. If, however, a performance process is not constrained, then how well members manage that process can substantially affect their team's eventual performance.

The salience of effort is constrained by the degree to which work *inputs* are under external control. When the arrival of the materials a team processes is controlled externally (e.g., by customer demand or machine pacing), a team can only respond to whatever it receives and will be unable to increase its output by working especially hard. In such circumstances the relationship between team effort and performance is severely restricted.

The salience of strategy is constrained by the degree to which performance *operations* are externally determined. When work procedures are completely prespecified (e.g., by mechanical requirements or by a manual that specifies exactly how the work is to be done), a team has little latitude to develop a new or better task performance strategy. In such circumstances the relationship between team performance strategies and performance is severely restricted.

Finally, the salience of knowledge and skill is constrained by the degree to which performance operations are *simple and predictable* (versus complex and unpredictable). When task performance requires the use of skills that are well learned in the general population on tasks that are well understood, a team is unable to improve its performance by bringing additional knowledge or skill to bear on the work. In such

circumstances the relationship between the team's utilization of member talent and team performance is severely restricted.

In some organizational circumstances all three of the performance processes are unconstrained, and all three, therefore, are salient in affecting performance outcomes. Consider, for example, the work of product development teams. The pace of the work is largely at the discretion of the team, performance procedures are mostly unprogrammed, and the work requires use of complex skills to deal with considerable uncertainty in the environment. Motivational, consultative, and educational coaching interventions, if competently provided, all can be helpful in fostering the performance effectiveness of such teams.

In other circumstances some performance processes are constrained and others are not. Surgical teams are one example (Edmondson, Bohmer, & Pisano, 2001). There is little constraint regarding the use of knowledge and skill by team members but moderate constraint on both strategy (some but not all procedures are programmed) and effort (some but not all task inputs derive from the nature of the surgical procedure and the response of the patient as the operation progresses). Finally, there are some circumstances in which all three performance processes are constrained, as for a team working on a mechanized assembly line where inputs are machine paced, assembly procedures are completely programmed, and performance operations are simple and predictable. A team assigned such a task would be a team in name only, since performance would depend so little on how members interacted.

Teams can be helped by coaching interventions that focus specifically on reducing process losses and/or on fostering process gains only for those aspects of team performance processes that are relatively unconstrained. Coaching interventions that address team processes that are substantially constrained will be ineffectual, since they seek to improve team processes that are not salient for how well the team performs. Such interventions can even compromise performance because they consume members' time and direct their attention away from more salient aspects of their interaction.

Proposition 3: Coaching interventions are helpful only when they address

team performance processes that are salient for a given task; those that address nonsalient processes are, at best, ineffectual.

Group Design

Certain features of a team's design, including properties of the social system context within which it operates, can negate the impact of coaching interventions, even those that are well executed and that address appropriate team performance processes. Moreover, design features can exacerbate the effects of good and poor coaching on team effectiveness, heightening the benefits of good coaching and making even worse the problems brought about by poor coaching.

Each of the three performance processes that form the core of our model—the level of effort the team expends on its task, the appropriateness of its performance strategies, and the amount of knowledge and skill it applies to the work—is shaped not only by coaching interventions but also by how well a team is structured and by the level of contextual support provided (Hackman, Wageman, Ruddy, & Ray, 2000).

The effort a team expends on its work is influenced by the design of its task (a structural feature) and by the reward system of the organization in which the team operates (a contextual support). A motivating team task is a whole and meaningful piece of work for which members share responsibility and accountability and one that is structured so that members receive regular and trustworthy data about how they are doing. Well-designed team tasks foster high, task-focused effort by team members (Hackman & Oldham, 1980). Team effort is enhanced by organizational reward systems that recognize and reinforce team excellence—and that avoid the common, if usually unintended, problem of providing disincentives for collaboration among team members by placing them in competition with one another for individual rewards (Wageman, 1995).

The task appropriateness of a team's performance strategy is influenced by its core norms of conduct (a structural feature) and by the organizational information system (a contextual support). Collective expectations about acceptable behavior are either "imported" to the group by members or established very early in its life

(Bettenhausen & Murnighan, 1985; Gersick, 1988), and they tend to remain in place until and unless something fairly dramatic occurs to force a rethinking about what behaviors are and are not appropriate (Gersick & Hackman, 1990; Louis & Sutton, 1991). When those upfront norms of conduct actively promote continuous scanning of the performance situation and proactive planning of how members will work together, they facilitate the development of task performance strategies that are appropriate for the team's task and situation (Hackman et al., 1976; Woolley, 1998). The appropriateness of a team's performance strategies also depends, however, on the degree to which the organizational information system makes available to the team whatever data and projections members may need to select or invent ways of proceeding that are well tuned to their circumstances (Abramis, 1990; Bickson, Cohen, & Mankin, 1999).

The level of *knowledge and skill* a team brings to bear on its work is influenced by the composition of the team (a structural feature) and by the organizational education system (a contextual support). Well-composed teams have members who bring to the group a rich array of task-relevant knowledge and skills, and they are structured so that members' talents can be drawn on readily in pursuing team purposes. Such teams are as small as possible, given the work to be accomplished, they include members who have appropriate skills, and they have a good *mix* of members—people who are neither so similar to one another that they are like peas from the same pod nor so different that they risk having difficulty communicating and coordinating with one another (Ancona & Caldwell, 1992; Campion, Medsker, & Higgs, 1993; Druskat, 1996; Goodman & Shah, 1992; Jackson, 1992).

Even well-composed teams, however, may not have within their boundaries all of the talent required for excellent performance. Organizational education systems can supplement internal resources by making available to teams, at the teams' initiative, technical or educational assistance for any aspects of the work for which members are not already knowledgeable, skilled, or experienced, including, if necessary, assistance honing members' skills in working together on collective tasks (Stevens & Yarish, 1999).

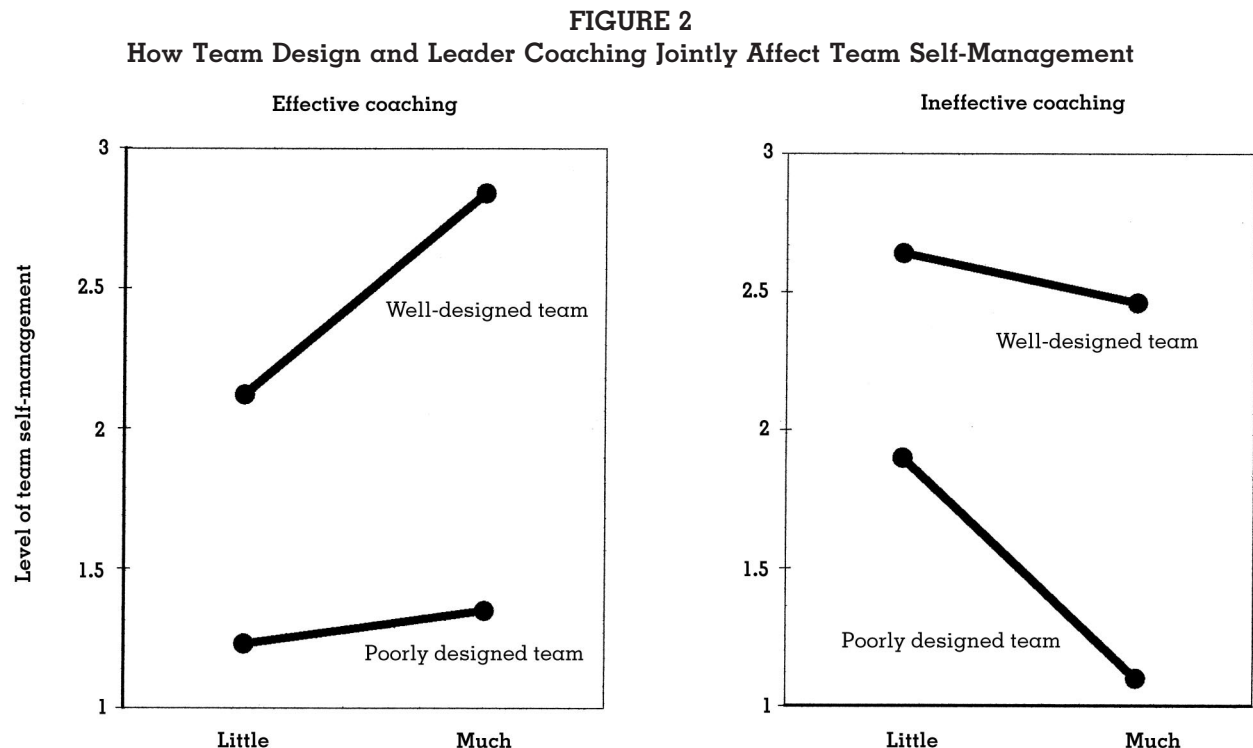
Research evidence clearly establishes the priority of structural and contextual features over

coaching behaviors as influences on team performance processes and outcomes (Cohen, Ledford, & Spreitzer, 1996). For example, Wageman (2001) found, in a study of field service teams at the Xerox Corporation, that team design features, including those described just above, controlled significantly more variance in both the level of team self-management and in performance effectiveness than did team leaders' coaching behaviors. For team self-management, design features controlled 42 percent of the variance, compared to less than 10 percent for measures that assessed the quality of leaders' coaching activities; for team performance, design controlled 37 percent of the variance, compared to less than 1 percent for coaching. These findings are consistent with other evidence, cited earlier, showing that even highly competent process-focused coaching by team leaders or consultants rarely generates substantial or enduring improvements in team processes or performance, and with the more general finding that coaching cannot prevail against strong structural and contextual forces (Hackman, 1987). It is nearly impossible to coach a team to greatness in a performance situation that undermines rather than supports teamwork.

When, then, can coaching make a constructive difference in team performance processes? We propose that coaching makes relatively small adjustments to an already defined trajectory. When a team's performance situation is favorable, competent coaching can be helpful to members in minimizing process losses and creating process gains. When a team's structure is flawed and/or its context is unsupportive, however, even competent process-focused coaching may do more harm than good.

Proposition 4: Competent coaching interventions (i.e., those that foster collective effort, task-appropriate performance strategies, and good use of member knowledge and skill) are more beneficial for groups that are well structured and supported than for those that are not; poor coaching interventions (i.e., those that subvert team performance processes) are more detrimental for teams that are poorly structured and supported than for those that are well designed.

Further findings from the Wageman (2001) study described above provide evidence in sup-



port of this proposition. As seen in the left panel of Figure 2, competent coaching (e.g., conducting a problem-solving process) helped well-designed teams exploit their favorable circumstances but made little difference for poorly designed teams. Poor coaching (e.g., identifying a team's problems and telling members how they should solve them), in contrast, was much more deleterious for poorly designed teams than for those that had an enabling team structure and a supportive organizational context (right panel of Figure 2).

The interaction between a team's design and the efficacy of coaching interventions may help explain the finding from "brainstorming" research that the pooled ideas of individuals working alone generally exceed in both quantity and quality the product of interacting brainstorming groups (Taylor, Berry, & Block, 1957). Studies of brainstorming typically use either ad hoc groups created especially for research purposes (e.g., Cohen, Whitmyre, & Funk, 1960) or existing organizational groups whose members are asked to take time from their regular work to participate in the research (e.g., Osborn, 1963). On the one hand, if the participating teams' design features are suboptimal—not unlikely for ad hoc or serendipitously obtained groups—it would not be surprising to find that brainstorming fails to facilitate creative team performance. For teams that have enabling structures and supportive contexts, on the other hand, this particular coaching intervention—as well as others that require teams to be able to use non-traditional and unfamiliar group process tools—might well generate substantial performance benefits.

In sum, even competent coaching is unlikely to be of much help to groups that have poor structures and/or unsupportive organizational contexts. Favorable performance situations, however, can yield a double benefit: teams are likely to have less need for coaching (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 may even enter into a self-fueling spiral of ever-increasing team capability and performance effectiveness (Lindsley, Brass, & Thomas, 1995).

CONCLUSION

In the present model we posit that team coaching can foster team effectiveness only when four conditions are present. Two of these conditions have to do with organizational circumstances and two with coaches' actions.

1. The group performance processes that are key to performance effectiveness (i.e., effort, strategy, and knowledge and skill) are relatively unconstrained by task or organizational requirements.
2. The team is well designed and the organizational context within which it operates supports rather than impedes team work.
3. Coaching behaviors focus on salient task performance processes rather than on members' interpersonal relationships or on processes that are not under the team's control.
4. Coaching interventions are made at times when the team is ready for them and able to deal with them—that is, at the beginning for effort-related (motivational) interventions, near the midpoint for strategy-related (consultative) interventions, and at the end of a task cycle for (educational) interventions that address knowledge and skill.

When these four conditions are present, skillfully provided coaching can yield substantial and enduring improvements in team effectiveness. Yet these conditions are not commonly found in traditionally designed and managed work organizations. Organizational work designs often constrain one or more of the three performance processes that drive team performance; organizational systems do not provide the supports that work teams need; and coaches, when trained at all, are taught the leadership styles preferred by trainers rather than helped to learn how to provide well-timed and appropriately focused interventions using their own preferred styles (Hackman, 2002; Hackman & Walton, 1986).

One could conclude, therefore, that few scholarly resources should be expended on research on team coaching because it is of so little consequence. Moreover, one could view the reports from the field (cited in the introduction to this paper) that team leaders spend less time on team coaching than on any other category of leader behavior as a sign of team leaders' wisdom. Rather than spend time on an activity that so rarely makes a difference, leaders might be better advised to focus on aspects of their lead-

ership portfolio for which there is a greater return from effort expended.

We believe such conclusions would be too pessimistic—for scholars and practitioners alike. Scholars with an interest in senior executive leadership have for many years debated just how much of a difference CEOs make in the performance of their firms. These disputes, which probably can never be resolved empirically, have now given way to a more tractable question—namely, *under what conditions* does senior leadership matter (Wasserman, Anand, & Nohria, 2001)? We suggest that a similar reframing of research questions about team coaching may be warranted. That is, instead of asking, “How much difference does team coaching make?” scholars might more productively expend resources in further research on the structural and contextual conditions under which competent team coaching does (and does not) significantly affect team performance.

The conduct of such research poses several significant challenges. For one thing, it is far from straightforward to measure leader behaviors and group processes reliably as they unfold in real time in fluid organizational circumstances. And since the effects of team coaching are determined jointly by factors that exist at multiple levels of analysis (i.e., the organizational, team, and individual levels), it is necessary to locate or create research settings where there is ample variation at all three levels (Hackman, 2003). Studies of coaching effectiveness cannot simply take as given whatever structural and contextual features are commonly found either in the experimental laboratory or in organizational life.

Indeed, it may be necessary in research on team coaching, as sometimes must be done in other scientific fields, such as medical research and subatomic physics, to first create one's phenomenon of interest before conducting research on its dynamics (Argyris, 1969). Research in laboratory settings, for example, could involve the construction and administration of model-specified coaching interventions at times either consistent or inconsistent with the model's propositions and then assessment of the consequences for group dynamics and performance. And action research in field settings could assess the impact of educational programs intended to help team coaches design interventions specifically tailored to the task and

organizational circumstances within which their teams operate. It is highly doubtful that any single laboratory or field study could comprehensively assess all the propositions of the present model. But studies that test individual propositions by creating specific coaching interventions and documenting their effects in contexts that are thoughtfully created or selected can, over time, provide the knowledge required to correct and refine the model.

The challenges for coaching practitioners are just as great as for scholars, and for the same reasons. Rather than simply taking as given the circumstances in which their teams operate, practitioners who lead work teams should give first priority to determining whether the basic structural and contextual conditions that foster team effectiveness are in place (Hackman, 2002). If they are not, team leaders would be well advised to exercise influence with their own peers and supervisors to create those conditions, and thereby to make competent team coaching possible. We hope the model of team coaching set forth in this article is of some use to practitioners in orienting and prioritizing such initiatives, as well as to scholars in conducting informative research about work teams and the behaviors of those who lead them.

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