

BRIDGING THE GAP BETWEEN I/O RESEARCH AND HR PRACTICE: IMPROVING TEAM COMPOSITION, TEAM TRAINING, AND TEAM TASK DESIGN

John R. Hollenbeck, D. Scott DeRue, and Rick Guzzo

This article identifies a series of critical gaps between the scientific body of knowledge on team functioning and actual HR practice regarding teams. These gaps span across the areas of team composition, training, and task design. The article then discusses specific theoretical and methodological advancements from recent team research that address each knowledge gap. In other words, what does the scientific literature suggest about team composition, training, and task design, and how does the scientific knowledge compare to actual HR practice? The applied implications and implementation issues associated with each of these knowledge gaps are also discussed, using the scientific literature as a foundation for developing specific recommendations.. © 2004 Wiley Periodicals, Inc.

Beginning in the early 1980s and extending to the present day, the use of teams in organizations has increased dramatically. Organizations have and are continuing to restructure work around teams rather than individual jobs (Ilgen, 1994). In parallel, the need and demand for theoretical and empirical research on team functioning has intensified. Past reviews of the literature on small groups and teams note considerable growth in the volume of team research over this same time horizon. However, as Levine and Moreland (1990) indicated, “[teams] are alive and well, but living elsewhere.” The health of team research is strong, but those who have traditionally focused on small groups are not fueling the evolution

of team research (Ilgen, 1999). Rather, those working in organizational behavior, speech communications, political decision making, and education are now driving the increased emphasis on teams (McGrath, 1997). The domains of organizational behavior and industrial and organizational (I/O) psychology have served as the principal caretakers of team research and, over the last decade, have made considerable strides in advancing knowledge on team functioning.

Despite the proliferation of teams embedded in organizations (Ilgen, 1999) and significant advancements in team research, teams still do not serve as a central element in the extensive base of literature

Correspondence to: John R. Hollenbeck, Michigan State University, N475 N. Business Complex, East Lansing, MI 48824, tel. 517-355-2413, jhr@msu.edu

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on human resource management (HRM). For example, in Noe, Hollenbeck, Gerhart, and Wright's (2003) *Human Resource Management: Gaining a Competitive Advantage*, only 8 of 750 pages are devoted to team phenomena. HRM literature has focused, and continues to focus, on individual-level phenomena. However, as HRM continues the current trend of developing a more strategic focus, the need to be more inclusive of team-level phenomena will become critical. HRM's adoption of team-level phenomena is beginning to occur in the scientific domain but is lagging in the field of practice.

The purpose of this article is to (a) identify critical science-practice knowledge gaps regarding team functioning, (b) discuss specific theoretical and methodological advancements in team research that address the specific knowledge gaps, and (c) highlight practical implications related to each science-practice gap. We will operationalize what we perceive as the gaps by expressing nine specific questions that many in practice might answer incorrectly if they did not have access to recent findings published by I/O psychologists. Because much of I/O psychology is operationalized in practice in terms of either (a) matching people to jobs (e.g., selection), (b) changing people to match jobs (e.g., training), or (c) changing jobs to match people (job design), we will organize this review into three sections on team composition, team training, and team task design. Within each of these domains, we will pose three questions.

Before discussing each of the science-practice gaps, it's critical to understand why we care about science-practice gaps in the areas of team composition, training, and task design. In other words, why are these gaps important in an applied sense? Let's use team training as an example. A recent national survey of managers highlighted training as a key factor in the success of work teams, and inadequate training as the *greatest* obstacle to high team performance (Stevens & Yarish, 1999). By identifying the major gaps between scientific knowledge and actual HR practice and then drawing attention to the

applied implications of such gaps, we can leverage science to ultimately eliminate the obstacles that prevent teams in organizations from reaching their peak performance potential. The science-practice gaps emphasized in this article are among the most important given the current state of organizational science and HR practice.

Team Composition: Matching People to Teams and Roles

Few contextual characteristics of teams have received more attention in both scientific study and the popular press than team composition. For instance, the *Financial Times* in 2001 identified "the wrong mix of people" as a fundamental mistake in the building of teams. In the article, "The Tactics of Team Building," the *Financial Times* (Hunt, 2001) highlighted two critical questions to address when composing a team. First, are the skills required of the team available in the current membership? Second, do the current members really gel? In recent years, science has significantly advanced the concept of team composition on multiple dimensions, including the role of teamwork skills and abilities, configuration of individual traits, and diversity. As a result, a number of science-practice knowledge gaps have emerged in these areas and are worthy of discussion.

Teamwork Skills and Abilities

"In terms of staffing workgroups, the most important attribute each member brings to the team is his or her unique technical skills and abilities." (True or False?)

False. Consider this scenario: The changing nature of products and customer demands forces a sales organization to replace independently working individuals with teams of salespeople. The company staffs these teams with those individuals judged to have the best sales and customer relationship skills. While this may seem sensible, recent scientific research has actually established that generic teamwork skills, above and beyond an individual's unique technical skills and

abilities, often determine team success or failure (Baker & Salas, 1992; Stevens & Campion, 1994). As organizations increasingly reengineer work design around teams and intensify the interdependence in task demands, the notion of teamwork has become a critical component of organizations.

Baker and Salas (1992) established the foundation for development of teamwork knowledge, skills, and abilities (KSAs) by (a) examining the measurement of teamwork skills on theoretical, methodological, and psychometric grounds and (b) outlining a series of guiding principles for future research on teamwork KSAs. On a theoretical level, the authors identified seven teamwork skill dimensions: providing feedback, cooperation, communication, team spirit and morale, adaptability, coordination, and accepting feedback. Specific to methodology, multitrait, multimethod (MTMM) and behavioral observation were identified as important techniques for the measurement of teamwork skills.

Building from Baker and Salas's (1992) initial work on teamwork KSAs, several authors have significantly advanced this area of research by developing taxonomies of team-based KSAs and identifying specific implications of those KSAs on HRM systems (e.g., Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995; Stevens & Campion, 1994). In particular, Stevens and Campion (1994) developed a taxonomy of KSAs for teamwork and identified specific implications of teamwork KSAs on HRM systems. The KSA requirements for teamwork, developed via a thorough and content-valid survey of preexisting literature, focus on interpersonal and self-management KSAs. Interpersonal KSAs incorporate dimensions of conflict resolution, collaborative problem solving, and communication. Self-management KSAs feature goal setting, performance management, and coordination dimensions. Subsequent to developing the taxonomy of teamwork KSAs, Stevens and Campion (1999) developed a valid test for measuring teamwork KSAs within a specific individual.

Via two separate validation studies, the 35 multiple-choice item test showed crite-

riterion-related validity with supervisory and peer ratings of teamwork and overall job performance. McClough and Rogelberg (2003) further validated Stevens and Campion's teamwork KSA measure while also examining (a) the extent to which other variables moderated the relationship between teamwork KSAs and individual behavior in teams and (b) the applicability of the test to different types of teams and member roles. McClough and Rogelberg found that the teamwork KSA test does in fact predict individual team member behavior, and the predictive relationship is not subject to an individual's perception of self-efficacy. The test was also found to be generalizable across types of teams.

From the research conducted on teamwork KSAs, a variety of specific implications for the design of team selection and placement systems can be identified (Stevens & Campion, 1994). First, selection procedures should not only measure individual-level technical KSAs, but teamwork KSAs should also be assessed. Second, recruiting for teams should emphasize the importance of teamwork KSA requirements. Finally, team staffing decisions should consider differences in employee preferences for working in groups.

Configurational Approaches to Composition

*"The best way to characterize a team's standing on some characteristic is to take the average of each team member's responses."
(True or False?)*

False. Given the importance of individual traits within a team context, the ability to identify and characterize a team's standing on a particular trait is critical. A simple and straightforward approach that is often applied is to take the average of team members on a particular team composition trait and treat this mean score as the team's composition score. However, rather than the average always being the best way to measure psychological characteristics at a team level, recent scientific findings suggest that the appropriate measurement technique for team composition traits is actually dependent

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upon circumstances. In other words, the mean score for a team on a particular trait is not always the best measurement technique. In certain cases, the group's minimum score, maximum score, or the variability in the score for a particular trait best represents the team.

LePine, Hollenbeck, Ilgen, and Hedlund (1997), based on earlier work by Steiner (1972), suggested that the nature of a team's task must be considered in order to properly account for the effect of certain individual traits on team performance. When tasks are additive, such that each member contributes to team performance in proportion to his or her ability, a mean score technique for measuring team composition may be most appropriate. For disjunctive tasks (e.g., problem-solving tasks) where the groups can perform as well as its best member, a maximum score technique may be most appropriate. Finally, when tasks are conjunctive (e.g., mountain climbing), such that performance depends on the team's weakest member, individual traits are potentially best measured using a minimum score technique.

The best method of aggregation could also depend on the nature of the trait. In a team context, a trait like conscientiousness may best be reflected by the team's minimum score, because highly conscientious individuals may perceive themselves as "suckers" who are being taken advantage of by social loafing, low-conscientiousness members. Those high on this specific trait may withhold their effort in the future, thus making the team resemble the lowest performers rather than the average performer. For other traits, like extroversion, the best way to characterize the team may be in terms of trait variability, such that the most desirable configuration would mix introverts and extroverts. Organizations may want to avoid teams that are either uniformly high or low on this particular characteristic, as poor team dynamics could result in a group composed of either all extroverts who struggle to control discussions or all introverts who struggle to generate discussion. Indeed, Barry and Stewart (1997) documented an inverted-U relationship between extroversion and team performance. Those teams having 20–40%

high-extroversion members outperformed all other team compositions—including teams composed of all extroverted individuals.

Barrick, Stewart, Neubert, and Mount (1998) followed up on this research and comprehensively studied the relationship between general cognitive ability and personality with team performance by employing four different operationalizations for ability: average, minimum, maximum, and variability. Results indicate only moderate correlations for the same team-composition trait across four measurement types (minimum, maximum, average, and variance). These correlation results suggest that each measurement technique captures a unique element of team composition. Depending on the individual trait of interest, the choice of measurement type significantly affects the relationship between trait and team outcome. The choice might also depend on the nature of the criterion.

Further extending the measurement research by both Barrick et al. (1998) and LePine et al. (1997), Kirkman, Tesluk, and Rosen (2001) proposed that the use of aggregation techniques is flawed and should be replaced by team consensus ratings. Aggregation of individual-level data does not capture the effect of a team's collective history or reflect the processes of member interaction that occur within the team context. Thus, instead of having individual team members fill out questionnaires on their own and then aggregate their scores, Kirkman et al. argue that the team should fill out a single questionnaire as a team. Kirkman et al. provided some evidence that this consensus rating method leads to better prediction of certain team outcomes.

Scientific research and practice have long appreciated the notion that individual traits within a team context can and do influence team performance. However, the complexity of this relationship between individual traits and team outcomes has only recently begun to be explained. Given the importance of work teams and their proliferation in organizations, these recent scientific discoveries on individual traits and configurational approaches have significant implications for the staffing of work teams.

The mix of individual traits within the team context is critical, and the appropriateness of a particular mix is dependent on the individual traits of interest, the nature of the particular task, and the desired team outcome (Barrick et al., 1998; LePine et al., 1997). This notion is even further complicated in that the measurement technique selected to operationalize individual traits at a team level significantly influences the effect of individual traits on team outcomes. These are very important findings that illustrate just how specifically one needs to define certain aspects of the team context in order to effectively staff teams.

Demographic Diversity in Teams

“Building demographic diversity into a team is essential for ensuring high levels of team performance.” (True or False?)

False. Over the past several decades, the nature of workforce demographics has changed considerably, including increases in gender diversity, cultural diversity, and age diversity (Bowers, Pharmer, & Salas, 2000; Jackson, May, & Whitney, 1995). Management of this diverse workforce has been identified as a very difficult but important challenge for the future of modern organizations (Harrison, Price, Gavin, & Florey, 2002; Tsui & Gutek, 1999). Specific to the management of diversity in team contexts, many have suggested that demographic diversity improves overall team performance. In contrast, scientific research indicates that (a) more demographic diversity does not *always* improve performance and (b) demographic diversity is actually less important to team performance than psychological diversity, especially over time.

A substantial body of evidence has accrued over the past decade that suggests individual dissimilarity can have adverse implications on specific team outcomes. A number of studies, such as Jackson et al. (1991), examine the impact of demographic diversity on team outcomes. Jackson et al., using Schneider’s (1987) attraction-selection-attrition model and Pfeffer’s (1983) organizational demography model, assessed the effect of demographic diversity (e.g., age,

tenure, education, gender) on turnover. Results suggest that turnover rates are positively related to the degree of demographic diversity within the team.

Bowers et al. (2000) extended team diversity research by exploring the composition of diversity on both demographic and psychological dimensions. Contrary to individual studies of team homo- and heterogeneity, meta-analytic results from this study showed little empirical support for homo- or heterogeneity on either demographic or psychological dimensions. As an alternative, Bowers et al. suggested that the effect on team performance found in many individual studies could be attributed to the nature of the team’s task. For a specific task at a particular point in time, team homogeneity or heterogeneity does have an effect on team performance. However, across time and series of tasks, results suggest that there may be little to no relationship between team diversity and performance. This distinction between demographic and psychological diversity, as well as the importance of time, was influential in establishing the foundation for a very noteworthy study by Harrison et al. (2002).

Harrison et al. (2002) advanced the research on demographic and psychological team diversity by examining the flow of diversity’s effects from actual member differences to perceived differences. The study also highlighted the influence time has on the team diversity-performance relationship. Results suggest that the passing of time (via team member collaboration) reduces the effect of demographic diversity on team performance but actually strengthens the effect of psychological diversity.

A practical illustration of recent team diversity research comes from an analysis of the effectiveness of teams in a professional services firm made by one of the authors. The company assessed the impact of various aspects of team member diversity on performance. Performance was defined as the ability to grow revenue. Greater demographic diversity contributed to performance, but a more important contributor was diversity with regard to the tenure of team members. Simply put, the greater the mix of tenure (a measure of experience in the firm), the

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greater the team performance. Thus, the effects of diversity on other dimensions can outweigh the effects of demographic diversity. Further, the effects of demographic diversity may diminish over time. Managing diversity when staffing teams has a new set of challenges, including finding ways to integrate team members who differ on more fundamental traits such as values, beliefs, and attitudes. As Harrison et al. (2002) suggest, maximizing differences in individual KSAs while minimizing differences in psychological dimensions of diversity may result in especially effective teams.

Team Training: Changing People To Fit Teams and Roles

Continuous employee training and development is essential for organizations to create and maintain competitive advantages (Smith-Jentsch, Salas, & Brannick, 2001). However, research on how the movement toward work team environments impacts the design and execution of employee training and development is still in its infancy (Canon-Bowers et al., 1995; Swezey & Salas, 1992). Recent advancements have begun to address and explain the importance and unique nature of team training in organizational settings. To date, several science-practice knowledge gaps have emerged as a result of research on (a) the relative value of team training versus individual training, (b) the emergence and role of shared mental models within teams, and (c) the utility of team cross-training. These science-practice knowledge gaps and their subsequent implications for organizations are the focus of this section.

Value of Team Training

"People need to learn and master their own individual job before being placed into a team context." (True or False?)

False. Traditionally, management practice has assumed that individuals need to be trained and show competence on their respective individual tasks before being selected into a team environment. However, a

series of recent scientific studies shows that training recall, transfer, and post-training team performance actually improve when training occurs within a team context. The advantages of team training relative to individual training are primarily a result of team interactions and team leader support.

To evaluate the effect of team-based training on team performance, Liang, Moreland, and Argote (1995) conducted a study in which two groups were trained on a specific task, but one group was trained as individuals and the other group trained in their respective teams. One week after the initial training, every individual performed the task within a work team context—with the teams formed during the initial training remaining together. Results indicate that those trained in teams exhibit greater training recall and team performance relative to those teams trained as individuals.

Extending the view that team-based training improves recall and performance, Smith-Jentsch et al. (2001) assessed the effect of team leader support and team climate on an individual's ability to recall and execute knowledge gained during training. The study manipulated team leader support via informal reinforcement of the trained behavior and measured the team transfer climate and behavior. Results suggest that team leader support moderates the disparity between an individual's potential post-training performance and his or her typical performance within the team. Additionally, team transfer climate mediates the influence of the team leader on post-training performance. In a similar study, Marks, Zaccaro, and Mathieu (2000) not only generated similar effects for the team leader on post-training performance (via leader briefings to the team) but also highlighted the importance of teamwork and team interaction training. The positive effect of team interaction training on post-training team performance is especially true in novel environments with which the team is unfamiliar.

The practical implications of team training are significant. National City Corporation, one of the largest regional banks in the United States, for example, has made

a substantial investment in individual training to achieve organizational change. Evidence indicates that the training is having a significantly positive impact on key measures of business performance (George, Hannibal, & Hirsch, 2004). The recent research on team training indicates that team training could substantially enhance the impact of that training. Ideally, a team training approach extends beyond individual, task-specific content to also feature teamwork and team interaction training. Furthermore, training designs for teams must also consider the team leader as a critical component. The potential positive effects of the team leader on training recall and post-training team performance need to be considered in the design of team-based training systems (e.g., leader briefings, reinforcement of trained behavior).

Shared Mental Models

“Teams work best when each team member has his or her own unique take on the nature of the task and the best way to accomplish it.” (True or False?)

False. Teams are often created to meet the demands of complex issues and tasks that are too large in scope to be accomplished by any one individual. These teams are often used as a way to apply different types of expertise, experiences, and perspectives to a common task (Mohammed & Ringseis, 2001). Conventional thought suggests that bringing together unique backgrounds and perspectives to focus on a particular task will result in higher-quality outcomes. However, scientific research advises that the need to reconcile these dissimilar perspectives, and the lack of a shared mental model within the team, can often interfere with team processes and result in lower overall team performance.

The antecedents that help facilitate development of shared mental models in teams have been explored in numerous studies. For instance, Mohammed and Ringseis (2001) explored which factors and processes are related to the development of cognitive consensus. Results indicate that

unanimity decision rule groups achieve more cognitive consensus than majority rule groups. Additional results suggest that processes such as group members inquiring about others' decision preferences, accepting others' opinions, and incorporating others' perspectives into the decision-making process are all positively related to the degree of cognitive consensus. Similarly, Stout, Cannon-Bowers, Salas, and Milanovich (1999) determined that effective team planning helps to develop a team's shared mental model, and subsequently results in an increase in communication efficiency and coordinated team performance.

To further explain the relationship between shared mental models and team performance, Mathieu, Heffner, Goodwin, Salas, and Cannon-Bowers (2000) conceptually and empirically distinguished between team members' task- and team-based mental models. Results show that both task- and team-based mental models, both in terms of degree of overlap as well as synergies among the ways in which team members organize their knowledge, are positively related to team performance. Explanations of this effect point to the notion that shared mental models enable team members to more efficiently and effectively coordinate behaviors and interpret behavioral cues (Cannon-Bowers & Salas, 2001).

From a practical perspective, the predictive ability of shared mental models enables managers to identify teams with potential performance problems and subsequently develop insights regarding how certain team performance problems should be addressed (Cannon-Bowers & Salas, 2001). For example, an insufficient shared mental model could clearly be the root problem of a team suffering from ineffective communication and decision-making ability. Research offers critical insights and tools to help diagnose and develop solutions for problems such as this. From a training perspective, managers need to incorporate key determinants of shared mental models (e.g., team planning) into training design and implementation practices, such that teams are more able to develop a team shared mental model without external intervention.

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Cross-training in Teams

"To enhance team effectiveness, each team member should be specialized for a specific task and redundancy between team members' skills should be minimized." (True or False?)

In contrast, recent scientific research suggests that cross-training team members on the tasks, duties, and responsibilities of other team members actually enhances team functioning beyond that of task-specific training.

False. A positive relationship between training and performance in team settings is and has been clear for some time. However, until recently, the notion of an optimal training strategy for teams has not been addressed (Volpe, Cannon-Bowers, Salas, & Spector, 1996). Conventional thought on teams suggests that team members should specialize on specific tasks, thus increasing performance on each task. By maximizing individual performance on each task and reducing team member redundancy, the team's collective performance might be expected to improve. In contrast, recent scientific research suggests that cross-training team members on the tasks, duties, and responsibilities of other team members actually enhances team functioning beyond that of task-specific training. Research also indicates that the optimal form and overall efficacy of cross-training depends on the nature of the team's task.

In 1996, Volpe et al. (1996) conducted one of the first studies to empirically test the efficacy of cross-training in team environments. Results indicate that cross-training generates more effective team processes such as teamwork, team interactions, and communication. Furthermore, team task performance is significantly improved as a result of cross-training. In a similar study, Cannon-Bowers, Salas, Blickensderfer, and Bowers (1998) studied the joint impact of cross-training and workload on team functioning. Results suggest that a positional rotation form of cross-training may be most effective in high workload and task interdependence environments. Positional rotation enables greater development of interpositional knowledge, which helps to enhance team functioning in difficult environments that require implicit coordination strategies. On the other hand, less intense forms of cross-

training, or no cross-training at all, may be adequate for less intense environments.

Research on the optimal design of cross-training for a particular task and team is limited (Volpe et al., 1996). Nonetheless, several practical implications for the development of team training systems can be identified. Within high workload and intense task-interdependence environments, cross-training is critical and improves team performance. The degree of workload and task interdependence present within a team drives the type of cross-training required. For instance, positional rotation training strategies are optimal for high-intensity environments.

Team Task Design: Changing Teams and Roles To Fit People

Team task design can be characterized as a series of structures and roles within a team context that determine the allocation of tasks, responsibilities, and authority (Stewart & Barrick, 2000). Many researchers have sought to describe and explain the relationship between team task design and team performance. In recent years, scientific research has advanced the concept of team task design and its relationship with team performance considerably. Significant progress has been made on several dimensions in particular, including the role of task allocation and decision-making structures on team performance and the influence of reward structures on team dynamics. The science-practice knowledge gaps that have emerged as a result of this scientific advancement are the focus of this section.

Task Allocation Structure

"The effective design of team structure should create high levels of task interdependence among team members." (True or False?)

False. An essential element of teams is task interdependence. Without task interdependence between members, a collection of individuals serves more as a group than as a team (Kozlowski & Bell, 2003). Taking this one step further, conventional thought suggests

that an effective team design produces high levels of task interdependence. However, recent scientific research shows that there is “no one best way” to design teams and that team task design is actually contingent on multiple factors. Thus, high interdependence in teams does not always enhance team performance. Two factors that have been shown to be critical elements of team task design are the (a) type of task and (b) level of internal and external fit.

Motivated by inconsistent findings across previous studies, Stewart and Barrick (2000) examined how task type moderates the relationship between task allocation structure and team performance. Task allocation structure was operationalized as the degree of task interdependence and team self-leadership. Results illustrate that the optimal amount of task interdependence and team self-leadership depends on the amount of time a team spends performing behavioral tasks (e.g., production) versus conceptual tasks (e.g., planning, negotiating). For teams engaged in mostly behavioral tasks, moderate levels of task interdependence and high levels of external team leadership lead to higher team performance. In contrast, teams engaged in more conceptual tasks exhibit a U-shaped relationship between task interdependence and team performance. Very high or low levels of interdependence result in greater team performance by promoting more open communication and less inner-team conflict. These teams also perform better as the degree of team self-leadership increases.

Extending the contingency perspective on task allocation structures, Hollenbeck et al. (2002) examined the degree to which the team structure-performance relationship is dependent on the level of external (structure and task environment) and internal (structure and individual traits) fit. Based on an interdependent team task, results indicate that strong team performance in a divisional team structure requires high individual cognitive ability. However, the advantages provided by high individual cognitive ability were neutralized by poor external fit between the structure and task environment (predictable or unpredictable). As the exter-

nal fit between team structure and task environment becomes more misaligned, emotional stability as an individual trait becomes much more important to team performance. The degree of internal fit has no significant effect on team performance within functional team structures.

As a result of the recent research on task allocation structures, several practical implications for the design of team tasks are evident. First, organizations using teams to perform conceptual tasks should incorporate very high or low levels of task interdependence, as well as greater self-leadership, into team designs. Contrarily, organizations with teams focused on behavioral tasks should use moderate levels of interdependence and greater external team leadership. Second, organizations can actually use team structure as a lever to promote higher team performance—especially when selection of the “best” people is not an option either due to tight labor markets or periods of extreme resource utilization.

Decision-Making Structure

“Teams make better decisions when the leader weighs each team member’s input equally.” (True or False?)

False. Along with the movement toward empowerment in organizations, a bias for decision making by consensus has also emerged. As indicated in *Fortune’s* 1998 discussion of “What Makes a Company Great” (Kahn, 1998), the “most admired teams show more consensus than almost any other company examined. There is unanimity not only on culture goals but also on where the company stands relative to those goals.” As illustrated by this quote, conventional thought suggests that team consensus produces optimal team decision-making outcomes. In contrast, scientific research shows that the quality of team decision making depends on a team’s ability to determine the relative value of each member’s input. This section examines the importance of determining an accurate weighting of team member input and how team leaders effectively set weightings for each team member.

However, recent scientific research shows that there is “no one best way” to design teams and that team task design is actually contingent on multiple factors.

From a management perspective, development of feedback mechanisms that provide leaders with information on the quality of team members' past judgments significantly enhances overall team decision-making accuracy. From a training perspective, leaders should be trained on how to best use and distribute decision influence among their staff when making decisions.

Hollenbeck et al. (1995) developed the multilevel theory of decision making to predict and explain performance variation in hierarchical teams with distributed expertise. The theory identifies three team-level (team informity, staff validity, and hierarchical sensitivity) and three sub-team-level (e.g. dyadic, individual) constructs that are central to team decision-making performance. Results from two empirical studies testing this theory indicate that constructs at multiple levels within the team affect team decision-making accuracy. For instance, the three team-level constructs together explain 25–50% of the variance in team decision-making accuracy. Furthermore, teams composed of members who are adept at translating raw data in their respective area of expertise into valid recommendations make better decisions, as long as team leaders appropriately weight the recommendations. Building on this multilevel theory of team decision making, Hollenbeck, Ilgen, LePine, Colquitt, and Hedlund (1998) examined the degree to which team-level decision-making accuracy is affected by factors originating at lower levels of analysis. Specifically, results show that team accuracy is a function of the differential weights assigned by team leaders when measuring the relative value of each team member's input.

Although it is difficult to develop an optimal and differentiated set of weights for team members, several factors have been identified that enable leaders to establish more accurate weightings. First, the presence of feedback mechanisms has a significant positive impact on hierarchical sensitivity (the degree to which the team leader effectively weights team members' judgments), which in turn has a major impact on overall team decision-making accuracy (Hollenbeck et al., 1998). Second, Phillips (1999) suggests that leader experience and the provision of information on the (cumulative) past accuracy of team member judgments enhances team leader weighting accuracy. Interestingly, the degree of confidence a team member has in his or her judgment does not significantly influence how leaders differentially and accurately weight team member input.

Importantly, the distribution of decision influence within a team context has effects on team-related outcomes other than decision-making accuracy, including team member satisfaction, self-efficacy, task withdrawal, and team viability (Phillips, 2001). Interestingly, the relationship between decision influence and these team-related outcomes is moderated by team performance. For instance, in lower-performing teams, decision influence is unrelated to member satisfaction with the leader, task withdrawal, and self-efficacy. In this case, the team's lack of performance overshadows members' concerns about decision influence. On the other hand, in higher-performing teams, decision influence is related to higher self-efficacy, higher willingness to return, and lower task withdrawal.

The notion that team leaders differentially weight team member input has significant practical implications within organizational settings. From a management perspective, development of feedback mechanisms that provide leaders with information on the quality of team members' past judgments significantly enhances overall team decision-making accuracy. From a training perspective, leaders should be trained on how to best use and distribute decision influence among their staff when making decisions.

Reward Structure

"Individual-based incentives that foster within-team competition have no place in team-based structures." (True or False?)

False. The degree to which teams should operate and be rewarded for behaving as cooperative or competitive systems is at the heart of the debate on reward structures for teams. Conventional thought suggests that individual-based reward structures promote within-team competition and thus have negative effects on team performance. This perspective assumes that, by competing, individuals place their own goals above those of the team, and any individual gains are at the expense of the team. From this, one may conclude that individual-based reward structures should not be

used in team contexts. However, recent scientific research suggests that the optimal team reward structure is contingent on the team's task environment and composition. In other words, under certain task conditions and for certain team compositions, individual-based reward structures can facilitate superior team performance relative to team-based reward systems.

For example, Beersma and De Dreu (2003) showed that teams that worked under a cooperative structure tended to perform better on the convergent aspects of a creative task, but teams that worked under a competitive structure tended to perform better on the divergent aspects of the task (e.g., generating original ideas). Thus, when the team's task is conceptualized as a multifaceted construct, much more can be learned about when and why different reward structures should be used or avoided.

Extending reward structure theory to account for task and interpersonal trait contingencies, Beersma et al. (2003) provided evidence that the optimal reward structure is dependent on task environment and team composition. Results suggest competitive reward structures enhance team speed, whereas cooperative reward structures facilitate team accuracy. Regarding team composition, teams high on extroversion and agreeableness perform better when rewarded as a cooperative system. In contrast, teams low on extroversion and agreeableness perform better when rewarded as a competitive system.

This contingency perspective on team reward structures has several practical implications. First, for task environments where team performance is more dependent on speed than accuracy (e.g., tasks focused on delivery speed), a competitive reward structure should be used. In contrast, cooperative reward structures should be employed when accuracy is more important than speed. Second, teams and incentive structures are often already in place before members join a specific team. Therefore, this contingency approach has significant implications when considering team composition. Individuals should be allocated to teams based on the degree of fit between the team's reward structure and the individual's personality.

Steps for Evaluating and Enhancing the Efficiency and Effectiveness of Implemented Practices

What does it take to implement teams effectively? *What* to manage is no surprise. Staffing (composing) teams, supporting teams through training, designing tasks, and properly combining the inputs of team members are basic processes that must be managed. *How* to implement teams most effectively, however, is less intuitively obvious. As this review demonstrates, recent research is peppered with examples of nonintuitive, and sometimes counterintuitive, findings about how best to compose teams, train them, and combine their individual members' contributions. With teams, as with other things in life, success is in the details. Practitioners will be well served to avoid the pitfalls of intuition and instead rely on research for insights and guideposts to direct their efforts toward team success. To "rely on research" means to make use of the wealth of knowledge in the published literature available to everyone. But it also means to engage in research on teams. Identifying through research the factors most responsible for team performance in an organization's unique context will give that organization actionable insights and a unique competitive advantage.

Conclusion

This article identifies a number of gaps between I/O psychology research and HR practice. In response to these gaps, we review a wealth of recent theoretical and methodological advancements in team research. The ideas and techniques highlighted in this review provide HR practitioners with a research-developed toolkit for improving team selection, training, and task design. As the use of teams in organizations expands and as science continues to advance the development of team-level theory, the challenge rests with HR practitioners to adopt team-level phenomena in practice at a much greater rate than is being done today. However great this challenge may be, success is vital so that gaps such as those emphasized in this article do not proliferate.

How to implement teams most effectively, however, is less intuitively obvious.

JOHN R. HOLLENBECK received his PhD in management from New York University in 1984 and is currently the Eli Broad Professor of Management at the Eli Broad Graduate School of Business Administration at Michigan State University. Dr. Hollenbeck served as the acting editor at *Organizational Behavior and Human Decision Processes* in 1995, the editor of *Personnel Psychology* from 1996 to 2002, and currently serves as the associate editor of *Decision Sciences*. Dr. Hollenbeck has published over 60 articles and book chapters on team decision making and work motivation, most of which were funded by the Office of Naval Research and the Air Force Office of Scientific Research.

D. SCOTT DERUE is a doctoral student in management and organizational behavior at the Eli Broad Graduate School of Management at Michigan State University. He graduated with honors from the University of North Carolina at Chapel Hill. Scott's research interests focus on team performance and learning, the role of affect in the workplace, and leadership. Prior to pursuing his PhD in management, Scott was a management consultant and project manager for the Monitor Group, a family of global professional service firms. Scott has also served in a senior marketing role with the Hinckley Yacht Company.

RICK GUZZO is a principal and worldwide partner with Mercer Human Resource Consulting. He consults to several Fortune 500 companies and other large organizations regarding human capital and he codirects Mercer's global R&D activities. An internationally recognized expert in organizational psychology, Rick is author/coauthor of several books, including *Team Effectiveness and Decision Making in Organizations*. Before joining Mercer in 1997, Rick was professor of psychology and management at the University of Maryland (1989–1997) and previously served on the faculties of NYU (1980–1989) and McGill University (1978–1980). Rick earned his BS in psychology at Ohio State University in 1974 and his PhD from Yale University in administrative sciences in 1979.

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