CHAPTER 8

The Search for Internal and External Fit in Teams

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In his essay commemorating the famous Hawthorne studies, Harold Leavitt (1975) suggested that people and organizations would be "better off" if groups, not individuals, were the basic building blocks of organizations (Hackman, 1987). Since his prophetic essay, the use of groups and teams in organizations has greatly expanded. As the focus of organizations shifted toward quality, innovation, and accountability, an emphasis on the use of work teams emerged (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996). As a result, organizations have restructured 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 have intensified. Past reviews of the literature on small groups and teams indicated considerable growth in the volume of team research over this same time horizon (Cohen & Bailey, 1997; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Kozlowski & Bell, 2003; McGrath, Arrow, & Berdahl, 2000).[1]

The increased focus on team research has helped develop convergence on many conceptual developments in the team literature. A recent example is the consensus that has developed regarding teams as complex systems (McGrath et al., 2000). Teams perform over time and within context, creating an environment that introduces a level of complexity not accounted for within traditional cause and effect perspectives on team functioning. For

[1]Some research distinguishes work teams from work groups, but this chapter does not make this distinction and uses the term teams to refer to work teams and groups. Other scholars have chosen to follow this same path (e.g., Kozlowski & Bell, 2003).

instance, the theory of compilation proposed by Kozlowski, Gully, Nason, and Smith (1999) described team inputs, processes, and outputs that develop over time as teams interact in context. In a reciprocal nature, the team's external environment influences intrateam interactions, and intrateam interactions influence the external environment. Knowledge, attitudes, and behaviors are both inputs and processes that impact team performance in a developmental sequence. In return, team performance is recycled and serves as an input to team process. Similar theoretical conceptualizations that frame teams as complex systems have begun to emerge in the literature (Marks, Mathieu, & Zaccaro, 2001; McGrath et al., 2000). Although differences exist between the various perspectives put forth, all share a common underpinning in that teams are complex and exist in the context of people, tasks, technologies, and settings.

Despite these theoretical developments, the complexity inherent in work teams has not been adequately addressed in empirical research. Classic works of Steiner (1972) and Hackman (1987, 1990) expressed the nature of team performance using an I–P–O framework in which inputs lead to processes that in turn lead to outcomes. This framework has had significant influence on the direction of empirical research on work teams, much of which either explicitly or implicitly invokes the I–P–O framework. However, the utility of this framework as a guide to empirical research fails to reflect the emerging consensus of teams as complex systems. The I–P–O framework implies a linear progression of main effects proceeding from one category (I, P, or O) to the next. However, in an integrative review of the team literature, Ilgen et al., in the 2005 *Annual Review of Psychology,* document interactions between various inputs and processes (I X P), between various processes (P X P), between inputs and emergent states (I X ES), and between processes and emergent states (P X ES). Documentation of these various interactions and complexities suggests that an alternative to the traditional I–P–O framework is needed for guiding the evolution of team research.

Rather than implying a linear progression of main effects from one category of variables to another, the presence of interactions suggests contingent relationships both within and between categories of variables. These contingencies imply that the effects of any one given input or process in team effectiveness may depend upon the level of some other input or process. Thus, a variable that might be positively related to effectiveness under one set of conditions might be unrelated or negatively related to effectiveness under another set of conditions. For example, Beersma et al. (2003) found that competitive team reward structures (a classic input in I–P–O terms) were positively related to performance when operationalized in terms of speed but negatively related to performance when operationalized in terms of accuracy. Thus, a competitive

reward structure is a good fit for situations that demand speed but a poor fit for situations that demand accuracy. Similarly, Stewart and Barrick (2000) found that the relationship between team structure and performance is contingent on the task environment. Teams with interdependent structures exhibit a U-shaped performance curve when engaged in conceptual tasks but experience an inverted U-shaped performance curve when performing behavioral tasks. Thus, conceptual tasks in a team context are a good fit when paired with very high or low levels of interdependence, and behavioral tasks are a good fit when the structure is designed with moderate interdependence.

Unlike what is implied by the traditional I–P–O model, these interactive and, in some cases, nonlinear relationships suggest that there is "no one best way" of creating team inputs or promoting team processes. Rather, there are different configurations of inputs and processes that need to be aligned, and a factor that might have positive effects in one context may not generalize when reproduced in a different context. Documenting these interactions has critical applied implications, as the unreflective adoption of a set of practices of one organization by another may result in unintended outcomes if the simple I–P–O model does not hold.

For example, many organizations that admired the management practices at the General Electric Company (GE) copied its use of forced ranking systems (FRS), in which a set percentage of low performers are terminated each year. However, unlike the results obtained at GE, many organizations (e.g., Ford) that simply imitated and adopted this FRS practice experienced disastrous results (Shirouzu, 2001). FRS reflects a competitive reward system (an input), and there is no simple and direct relationship between this practice and overall group performance as implied by I–P–O models.

Similarly, a new executive team at Home Depot, who were formerly with GE, tried to transport GE's relatively centralized structure for making purchasing decisions to Home Depot, again with disastrous results (Morse, 2003) The relationship between the group's decision-making structure (an input) and outcomes is again a complex function of a number of contingent factors that makes the kind of mimicry prompted by a belief in straightforward, I–P–O models a doomed venture from the start. Instead of searching for a single practice to copy, organizations need to recognize that certain sets of practices that fit in one type of task, or in one context, or with one group of people may not fit with a different type of task, a different context, or a different group of people.

To address these issues, in this chapter we develop a multilevel framework of team effectiveness that is conceptualized using individual and team-level dimensions of internal and external fit. This framework, in accord with past research, extends the general proposition that the rela-

tionship between individual differences and outcomes is contingent on the nature of the environment, task, and/or organization (Kristoff, 1996; Hollenbeck et al., 2002). Similar to other fit conceptualizations in their respective domains and levels of study, this framework shows that there is no one best way to organize at the team level. Also in accord with past research on fit, this framework applies the concept of fit in multiple directions. In other words, the fit among elements internal to the team as well as between the team and the external environment are important considerations.

Although use of the fit conceptualization at the team level is not unique to the framework developed here, it is essential for considering the complex nature of work teams. The notion of fit is often implicit in the patterns of congruence, interactions, and contingencies that are discussed throughout the team literature. However, the notion of fit is not necessarily synonymous with terms of contingency, and the fit perspective presented here offers a valuable extension beyond existing contingency perspectives on teams. Contingency implies moderation or an interaction between two or more constructs. Fit, as conceptualized here, extends the contingency perspective by more clearly specifying the form and nature of the interaction.

In other words, the framework offered here not only acknowledges the contingency-based relationship or interaction between two constructs but also specifies the level of each construct that produces an optimal alignment or match. As such, our focus is on the fit of people, tasks, and processes, where each of these is specified and assessed independently. In turn, we do not focus on summary perceptions of whether or not any one individual subjectively feels like he or she "fits" with the team on some unspecified dimension. Although this latter subjective perception of fit is often an outcome of creating an objectively good fit on a specific dimension of interest, it has limited diagnostic value as either a criterion or as a predictor because of its unspecified nature.

This chapter is organized into four sections. First, we introduce and describe the framework of internal and external fit in teams. The key dimensions of the framework and each element within the framework are thoroughly defined. Second, we review the existing theoretical and empirical research on teams using this framework as an organizing tool. In this in-depth, critical review of the team literature, we establish the theoretical and empirical foundation for the framework and outline what is currently understood regarding the role of internal and external fit in work teams. In conclusion, we identify and discuss a series of research questions that arise as a result of examining work team effectiveness through the lens of internal and external fit. These research questions establish the direction for future research on the role of fit in teams.

INTERNAL AND EXTERNAL FIT IN TEAMS: A CONCEPTUAL FRAMEWORK

Traditional I–P–O frameworks (e.g., Hackman, 1987) of team effectiveness provide an insufficient and disjointed view of fit in teams by illustrating how select team inputs engender certain team processes and how select team processes generate specific team outputs. A key limitation of traditional I–P–O frameworks is determining how various team elements systematically "fit" together to generate their effects. The study and examination of fit in teams has recently emerged as a topic of interest (Hollenbeck et al., 2002; Kristoff-Brown & Stevens, 2001; Kristoff-Brown, Jansen, & Colbert, 2002; Werbel & Gilliland, 1999) and potential means of addressing these limitations in traditional frameworks. As researchers increasingly recognize the complex nature of work teams, the consideration of fit in teams will become even more critical.

To address this complexity, the framework considers two forms of fit in work teams (internal and external), identifies the team characteristics that have the most impact on the degree of fit in work teams, and illustrates how certain team variables serve as linking mechanisms between the internal and external dimensions of fit to engender team effectiveness. The choice of team elements considered in the framework is not exhaustive but does highlight those fit relationships which, based on existing empirical research, have the most impact on both individual and team-level outcomes. In this section of the chapter we present and define (a) each specific element within the framework and (b) the relationships between those elements.

Despite its recent application at the team level, use of the fit concept in organizational studies is deeply rooted. For instance, at the organization level, the structural contingency theory of organizations has "at its heart" the concept of fit (Donaldson, 2001). Structural contingency theory maintains that organizational performance is contingent on the fit between structure and the environment. At the individual level, Lewin's (1951) equation $B = f(P,E)$ spawned an entire stream of research on the fit between person and environment. Person–environment fit suggests that individuals will have positive experiences when work provides an environment that is compatible with their personal characteristics (Krisoff-Brown, Jansen, & Colbert, 2002). This framework extends those conceptualizations of fit to the team level.

When discussing fit at any level, it is vital that the term *fit* is defined precisely. Throughout the organizational literature, multiple ways of conceptualizing the notion of fit exist. Specific to internal and external fit in the context of teams, fit is best conceptualized as the congruence or alignment between a combined set of team elements that produces a relatively higher level of team effectiveness, including both individual (e.g., team member

satisfaction) and team-level (e.g., team task performance) outcomes. In contrast, *misfit* is the incongruent combination of elements that results in relatively lower team effectiveness. This conceptualization is consistent with previous definitions of fit used in other individual and organization-level studies (e.g., Cable & DeRue, 2002; Donaldson, 2001; Pfeffer, 1997).

Fit, as conceptualized in this framework, is also multidimensional. First, fit can be internal (i.e., person-related) or external (i.e., task-related). Internal fit addresses the degree to which variables within the team (e.g., composition) are congruent with each other. As such, internal fit in teams can take on two forms. The first form of fit relates to within-team composition and refers to how team member characteristics (e.g., personalities and abilities) fit together. This form of internal fit connects individual-level characteristics with team-level composition. The second form of internal fit refers to the fit between team-level composition and the linking mechanisms (e.g., structure and rewards) that connect internal and external fit in teams. The distinction between the two forms of internal fit is important, as one can easily imagine a team having good within-team compositional fit (e.g., the right mix of personalities) but not having a good fit between team composition and a linking mechanism (e.g., the composition of personalities in the team does not match the reward structure). External fit refers to the alignment between certain team characteristics and the external environment. Within the context of this particular framework, the external environment is focused on task-related variables; however, other characteristics of the external environment (e.g., organizational context) could also be considered.

Second, within both the internal and external dimensions of fit, fit can be characterized as either supplementary or complementary. Supplementary fit occurs when elements share common qualities, and complementary fit occurs when elements have distinct qualities that have a supportive or reinforcing relationship (Muchinsky & Monahan, 1987). A team whose members have common values would represent supplementary fit, whereas a cross-functional work team whose members have distinct yet supportive areas of expertise would exhibit complementary fit. By considering the multiple dimensions of fit in teams, this framework illustrates how the congruence among team variables, both at the individual and team level, influences team effectiveness. Before we review the empirical research that establishes the foundation of this framework, each component of the model is defined.

Individual-Level Elements

Individual Profiles of Abilities and Traits

The collection of within-person characteristics that a particular team member possesses are referred to here as individual profiles. An individ-

ual's profile is composed of his or her skills, abilities, and psychological traits. In comparison with other conceptualizations of fit, the individual profile is similar to the *person* component of studies on person–environment and person–organization fit. Researchers of person–environment and person–organization fit often operationalize the person component as an individual's values, goals, personality, and attitudes (Cable & DeRue, 2002; Kristoff, 1996). Thus, individual profiles in this context point to the within-person characteristics, including knowledge, skills, and abilities, values, goals, and psychological traits (e.g., personality), that each team member brings to the team.

Team-Level Elements

Team Composition

Team composition is defined as the collective nature and attributes of all team members. The most appropriate form of measurement for team composition has historically been a key topic of interest. One common operationalization is to calculate a mean score for specific individual-level measures (Barrick, Stewart, Neubert, & Mount, 1998). Conversely, some have argued that conjunctive (the team's lowest scoring member) or disjunctive (the team's highest scoring member) measures may be theoretically more appropriate, depending upon the nature of the task and the trait (LePine, Hollenbeck, Ilgen, & Hedlund, 1997).

Team Task Environment

Teams, by definition, are responsible for a collective task. The team task environment, or the nature of this collective task, has and continues to be an important consideration in the study of work teams. The key characteristics of the team task environment include the degree of uncertainty inherent in the task, the level of interdependence required among team members, and the timing associated with coordinating and orchestrating behavioral task sequences (Steiner, 1972; Wittenbaum, Vaughan, & Stasser, 1998).

Linking Mechanisms

Structure

Team structure addresses how team members are differentiated and how the independent actions of individuals are coordinated. One dimension of structure is departmentation, which refers to the basis on which labor is divided (Wagner, 2000). Departmentation is often conceptualized as functional (specialized roles) or divisional (broader, more independent

roles). A second dimension of structure is the degree to which responsibility and decision-making are centralized or decentralized (Wagner, 2000) within the team.

Technology

Recent literature offers two distinct definitions of technology. The first conceptualizes technology as workflow or coordination. In the context of this framework, this definition of technology overlaps with the team structure and team process variables and is thus not used. The second definition of technology, which is used in the context of this framework, refers to computers and other electronic devices used in the team context to perform a task. This definition of technology has garnered particular attention, given the recent emergence of virtual teams as an area of interest. With more than 50% of large companies using some form of virtual teams (De Lisser, 1999), the actual technology hardware used to facilitate team functioning and performance has become a critical element in the study of teams (Townsend, DeMarie, & Hendrickson, 1998). Examples of technology include fax and e-mail communication, electronic file transfer, Internet bulletin boards, and decision support systems (e.g., Dennis, Valacich, & Nunamaker, 1990; Qureshi, 1998).

Rewards

Rewards refers to the system through which individual team members are paid and formally rewarded for their participation in the team. In general, reward systems in teams differ in the degree to which rewards in the team are cooperatively or competitively-based (Beersma et al., 2003; Deutsch, 1949; Miller & Hamblin, 1963; Stanne, Johnson, & Johnson, 1999). This dimension is particularly important when one considers the impact of rewards on internal and external team fit and thus team effectiveness.

Team Process and Emergent States

Team process refers to team members' cognitive, behavioral, and verbal interpersonal acts that are directed toward organizing task work and achieving collective goals. Team process involves team members interacting with each other in context and does not include the actual task work (Marks et al., 2001). These interpersonal acts thus serve as mediators of the input to outcome relationship specified in traditional I–P–O models. In addition to formal team processes, team emergent states, which refer to the collective affective and emotional experiences of team members that develop over time, are also important mediators of the input to outcome process implied by I–P–O models. Ilgen et al., in the 2005

Annual Review of Psychology, identified six different mediational influences related to teams that encompassed both processes and emergent states: trusting, planning, structuring, bonding, adapting, and learning. All six of these mediators are important when one considers the degree of internal and external fit in teams and the subsequent implications for team effectiveness.

INTERNAL AND EXTERNAL FIT IN TEAMS: A REVIEW OF THE LITERATURE

From a search of both the business and psychological literature indexes, we considered and reviewed several hundred articles for possible inclusion in this review. In our search, we used keywords such as *contingency, fit, congruence,* and *interaction,* preceded by the word *group* or *team.* Ultimately, we focused our review on 20 empirical studies (see Table 8–1) of teams in organizations, in all of which fit or contingency-based relationships in teams were examined . In the context of this review, we present a heuristic framework (see Fig. 8–1) for the role of internal and external fit in teams. This framework and the accompanying literature review illustrate (a) what we currently know about the role of fit in teams and (b) in which areas future researchers on teams need to focus. Table 8–1 outlines the empirical studies covered in this review, including which dimension(s) of fit is addressed (see Fig 8–1 for the corresponding framework), how the specific variables are conceptualized, and what the team outcome was.

The literature review is organized into two sections. We first focus on the domain of internal fit. Subsequently, we turn our attention to the domain of external fit. To the extent possible given existing empirical research, we discuss any evidence for differentiating between supplementary and complementary fit within each of these two sections.

Dimensions of Internal Fit

The dimensions of internal fit, as seen in the upper region of Fig. 8–1, are anchored in the compositional elements of the team as well as the relationship between team composition and four team characteristics that we refer to as linking mechanisms: team structure, rewards, technology, and processes/emergent states. Person–team fit, one of these dimensions, spans across multiple levels (individual and team) of the model. Person–team fit, or the congruence between an individual team member's profile and the team's composition, is the team-level analog to person–organization fit (Adkins, Ravlin, & Meglino, 1996; Kristoff-Brown & Stevens, 2001). Research on person–organization fit suggests that congruence on psychological constructs such as goals (Vancouver & Schmitt, 1991), values (Boxx, Odom, & Dunn, 1991; Chatman, 1991), and person-

TABLE 8–1.
Review of Empirical Studies

Dimension of Fit	*Citation*	*Variables in the Fit Relationship*		*Team Outcomes*
		Variable A	*Variable B*	
1a	Kristoff-Brown and Stevens (2001)	Member goals (performance, mastery)	Other team member goals (performance, mastery)	Team member satisfaction
1a	Witt et al. (2001)	Member goals	Other team member goals	Team politics, satisfaction, and effectiveness
1a	LePine et al. (1997)	Team cognitive ability, team conscientious-ness	Team leader cognitive ability, team leader conscientious-ness	Team task performance
1a	Polzer et al. (2002)	Team diversity	Interpersonal congruence	Creativity, social integration, team identification
1a	Barry and Stewart (1997)	Individual extraversion	Team-level extraversion	Team effectiveness, task focus
1a	Barsade et al (2000)	Individual positive/ negative affect	Team-level positive/ negative affect	Task and emotional conflict, influence in team
1b	Simons et al. (1999)	Job (tenure) and non-jobrelated (age, race) diversity sharing	Debate in team	Team effectiveness
1c	Beersma et al. (2003)	Personality (extraversion, agreeableness)	Reward structure (cooperative/ competitive)	Team effectiveness
1d	Hollenbeck et al. (2002)	Cognitive ability, emotional stability	Functional/ divisional team structure	Team effectiveness
1d	LePine (2003)	Cognitive ability, achievement, openness, dependability	Constant/ changing role structure	Postchange team effectiveness
1e	Colquitt et al. (2002)	Computer-assisted communication	Openness	Decision-making performance
2a	Bonner et al. (2002)	Decision-making processes	Task complexity	Decision-making performance

(*continued*)

TABLE 8–1.
(*Continued*)

Dimension of Fit	*Citation*	*Variables in the Fit Relationship*		*Team Outcomes*
		Variable A	*Variable B*	
2a	Jehn (1995)	Task/relationship conflict	Routine/non-routine task environment	Team effectiveness
2a	De Dreu and Weingart (2003)	Task/relationship conflict	Task complexity	Team effectiveness
2a	Alper et al. (1998)	Information sharing/ communication	Goal inter-dependence	Team effectiveness
2b	Wageman and Baker (1997)	Reward inter-dependence	Task inter-dependence	Team effectiveness
2b	Beersma et al. (2003)	Reward structure	Speed/accuracy task characteristics	Team effectiveness
2c	Stewart and Barrick (2000)	Structural inter-dependence	Conceptual/ behavioral task environment	Team effectiveness
2c	Hollenbeck et al. (2002)	Functional/ divisional team structure	Random/ predictable task environment	Team effectiveness
2d	Sarter et al. (1997, 2000, 2001)	Autonomy, task complexity	Type of decision support system	Decision-making performance

ality and attitudes (Bretz & Judge, 1994) can improve individuals' attitudes, participation, and performance in collective activities.

The concept of person–team fit extends this notion by leveraging similar psychological constructs at the team level. Recent research supports the notion that, when based on the congruence of member and team goals (Kristoff-Brown & Stevens, 2001; Witt, Hilton, & Hochwater, 2001), ability (LePine et al., 1997), and work style preferences (Polzer, Milton, & Swann, 2002), person–team fit can positively or negatively influence team effectiveness. In addition, although not based on empirical data and thus not part of our formal review, Werbel and colleagues (Werbel & Gilliland, 1999; Werbel & Johnson, 2001) suggested that person–team congruence on work values and norms will have a positive relationship

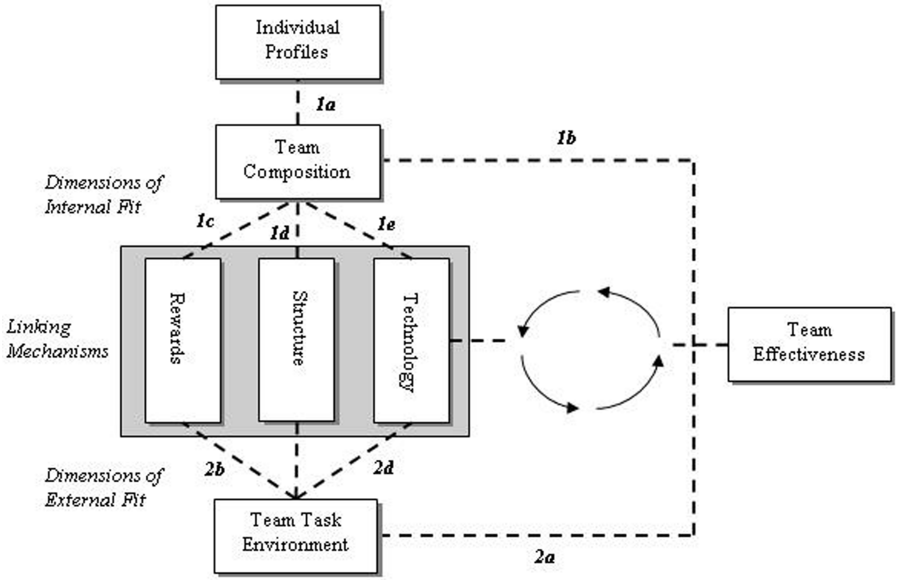

FIGURE 8–1. Heuristic framework for the role of internal and external fit in teams.

with team effectiveness. Effective study of person–team fit on work values and norms requires researchers to first identify and differentiate among work values and norms to determine which are most interesting with respect to fit in teams.

In a study of 23 matrix-structured teams, Witt et al. (2001) found that member–team goal congruence moderated the relationship between team-level politics and ratings of team effectiveness and member satisfaction. The negative influence of politics on team effectiveness and satisfaction is amplified in teams with low levels of person–team goal congruence, suggesting that one way to cope with team politics is to ensure person–team fit with respect to goals. Kristof-Brown and Stevens (2001), in a study of 64 project teams, not only found similar evidence supporting the need for congruence between personal and perceived team goals but also discovered that the effect on team- and individual-level outcomes depends on the type of goal. For instance, the highest levels of member satisfaction with the team occurred when person–team congruence was high on performance goals, but high congruence or fit on mastery goals did not have the same level of positive impact.

LePine et al. (1997) examined person–team fit using two distinct individual differences: cognitive ability and conscientiousness. This research found that team performance was highest when the team and the team leader both had high cognitive ability and levels of conscientiousness

(high person–team fit). On the other hand, team task performance suffered if the relationship was incongruent (e.g., the team leader had low ability, but the team had high ability). Thus, a leader with low cognitive ability and/or conscientiousness could neutralize a good staff (and vice versa).

Exploring a different dimension of member personality, Barry and Stewart (1997) showed that the proportion of relatively extraverted members in the team has a curvilinear relationship with respect to task focus (an emergent state) and team performance. Thus, the effect of a single team member's level of extraversion on team outcomes is contingent on the current level of extraversion already in the team. For instance, if the team currently has a low level of extraversion, adding a highly extraverted member may enhance team effectiveness. However, if the team currently has a high level of extraversion, the addition of a highly extraverted member may negatively influence team effectiveness.

Barsade, Ward, Turner, and Sonnenfeld (2000), in a study of 62 U.S. top management teams, extended the person–team fit literature by considering the role of positive and negative affect. In this study, the influence of person–team fit (conceptualized as the fit between member affect and the affect of his or her team) on outcomes such as task and emotional conflict and influence in the team was examined. Findings suggested that greater affective fit is related to more positive individual attitudes in the team and perceptions of greater influence in the team. Member–team incongruence with respect to affective fit led to the chief executive officer, or team leader, using less participatory decision making and the team experiencing higher task and emotional conflict. Interestingly, fit or misfit with respect to negative affect in the team was not related to any individual- or team-level outcomes.

Polzer et al. (2002), in a study of 83 work teams, found that diversity in a team improved creativity task performance but only in teams with high interpersonal congruence. Team diversity was conceptualized along various demographic and experience dimensions, including gender, ethnicity, nationality, and previous job experience. Interpersonal congruence, in the context of this study, was defined as the degree to which team members saw others in the team as others saw themselves. In addition to the positive effects on creativity, interpersonal congruence also was found to positively affect social integration and team identification. Thus, team members can experience enhanced team processes and foster higher levels of team performance by expressing rather than suppressing the characteristics that make them unique.

In their conceptual model of person–team fit, Werbel and Johnson (2001) raised the issue that person–team fit is actually multidimensional. Applying person–team fit in a selection context, they suggested that a bias exists toward conceptualizing fit as supplementary, or development of similar qualities among team members. In contrast, however, all team members have some personal assets and deficiencies related to supporting

team effectiveness. Thus, complementary person–team fit can often neutralize a single individual's weaknesses and, in turn, enhance overall team effectiveness.

Whereas Werbel and Johnson's (2001) work was purely conceptual and thus is not part of our formal review of empirical studies, LePine et al.'s (1997) study did show, as an example, how the interaction between characteristics of the team and those of the team's weakest member can offset the negative influence of the weakest member and thus positively influence team effectiveness. Future empirical researchers need to follow in this spirit and give more consideration to the differences between supplementary and complementary person–team fit. The effectiveness of complementary and supplementary fit in the context of teams is likely to depend on the variables in question, thus providing an interesting opportunity and challenge for future researchers.

The other dimensions of internal fit in teams, all operating at the team-level, are conceptualized as the fit between team composition and a series of linking mechanisms that then connect the composition-based dimensions of internal fit with the task-related dimensions of external fit. These linking mechanisms include team structure, technology, rewards, and processes/emergent states. The domain of team composition research has, at varying degrees of depth, explained the relationship between team composition and all four of these linking mechanisms.

It is important to note that many composition-focused studies are grounded at the individual level, and these studies examine the effects of individual attributes on team process. These studies do not represent a team-level dimension of internal fit. Rather, team-level composition is conceptualized as an attribute of the collective. Across the general team composition literature, both job- and nonjob-related compositional factors have been examined at the team-level, including positive and negative affect (Barsade et al., 2000), nationality (Earley & Mosakowski, 2000), age and race (Simons, Pelled, & Smith, 1999), gender (Rogelberg & Rumery, 1996), personality (Barrick et al., 1998; Barry & Stewart, 1997), ability (Barrick et al., 1998; Devine, 1999), and functional diversity (Bunderson & Sutcliffe, 2003). The degree to which congruence between team compositional factors and specific team processes influences team effectiveness is a fairly unexplored area of interest.

A recent study by Simons et al. (1999) illustrated just how this dimension of fit can influence team effectiveness. Data from this study suggested that debate in management teams increases the tendency for diversity to enhance team performance. Further, these positive effects are strongest when team diversity is based on job-related dimensions (e.g., functional background and company tenure) rather than on nonjob-related dimensions (e.g., age). By indicating that diversity must be in congruence with the appropriate debate processes for the team to benefit from diversity, this

study established the rationale for exploring the role of interactions between team processes and emergent states and team composition.

In addition to studying the fit between team composition and team processes/emergent states, research has also been done to examine the fit between team composition and structure, technology, and rewards. All three of these dimensions of internal fit have recently emerged as important areas for empirical research. Although some have argued conceptually that rewards for individual performance should be eliminated from team contexts (Demming, 1986), only recently have empirical researchers begun to address such claims—and much of empirical evidence thus far has called into question such broad, undifferentiated claims. Most of the recent research suggests that, even in team contexts, the appropriate reward system depends on many other contingent factors, including team composition.

Despite numerous acknowledgements of its importance (Albanese & Van Fleet, 1985; DeMatteo, Eby, & Sundstrom, 1998; Gerhart & Milkovich, 1992), the congruency between team composition and team rewards has received little empirical attention. What evidence does exist, however, clearly shows that the fit between team composition and team rewards can significantly influence team effectiveness. Beersma et al. (2003) illustrated how the effects of personality on team performance are contingent on the type of reward structure used in the team. In general, teams composed of extraverted and agreeable members perform better within a cooperative reward structure (team-based reward system), whereas teams low on these dimensions of personality perform better within a competitive reward structure (individual-based reward system). Thus, not all teams should be rewarded as a team. Rather, the most appropriate reward system, individually or team-based, depends on the personality of the team.

With respect to team structure, clear empirical evidence exists to suggest that the fit between team composition and team structure is a critical determinant of team effectiveness. In other words, team composition interacts with team structure to affect team outcomes. Hollenbeck et al. (2002) examined, albeit at the individual level, the relationship between compositional factors and team structure. Results from their study indicated that general cognitive ability is positively related to performance but only in teams that use divisional structures that create broad roles. For teams structured functionally into narrow roles, this relationship does not hold.

Furthermore, when teams experienced poor external fit between structure and the task environment, emotional stability became the most critical personal attribute for predicting performance. Thus, high levels of emotional stability can attenuate the otherwise negative effects of a poor external fit between team structure and the team task environment.

Interestingly, results from this study suggested that functional team structures are not conducive to the manifestation of any type of individual difference effects. If true, the team composition–structure fit relationship is only meaningful if teams are structured divisionally.

LePine (2003) extended research on this dimension of internal fit to the team level by concentrating on the relationship between team–level cognitive ability, achievement, and openness with adaptations in role structure. Role structures, as defined by Katz and Kahn (1978), are the recurring task-focused actions of individuals interrelated with the recurring task-focused actions of others. LePine (2003) found that teams with higher levels of cognitive ability, achievement, and openness and lower levels of dependability performed superior to other teams after an unforeseen change in the team task. Thus, the performance of teams that experience unexpected changes in role structures is contingent on the level of cognitive ability, achievement, openness to experience, and dependability in the team.

The final linking mechanism with respect to the dimension of internal fit is technology, defined as the hardware or software technology used in team contexts to facilitate task performance. Interest in the role of technology in team-based work environments has increased in parallel with that of virtual teams. One particular area of interest is how technology interacts with team composition. Most studies on this topic focus on the congruence between individual-level attributes and the form or type of technology (e.g., Arthur, Young, Jordan, & Shebilske, 1996), thereby not representing a team-level dimension of fit. That said, a recent study by Colquitt, Hollenbeck, Ilgen, LePine, and Sheppard (2002) extended this notion to the team level by examining team-level openness and the role of computer-assisted communication in team decision making. Results from this study suggested that the positive effects of computer-assisted communication on team performance are contingent on the degree of openness in the team. Only those teams high in openness benefit from computer-assisted communication, supporting the notion that certain team compositions fit with technology in such a way that engenders superior team performance.

Dimensions of External Fit

Since the beginnings of team research, the task has been an important consideration. Early distinctions between tasks focused on oversimplified dichotomies (e.g., simple versus complex). McGrath and Altman (1966) began a movement to conceptualize more systematically the characteristics of tasks in team contexts. This movement led to Steiner's (1972) typology of tasks, Hackman, Brousseau, and Weiss's (1976) task types, Laughlin's (1980) classification of group tasks, and then finally to McGrath's (1984) circumplex model of group tasks. Van de Ven, Delbecq,

and Koenig (1976) defined task uncertainty as "the difficulty and variability of the work undertaken by an organizational unit." Wittenbaum et al. (1998), in discussing the coordination of tasks, incorporated the notion of task-related time pressure.

In recent years, a collection of empirical studies has been developed, documenting the importance of considering the team task environment when one examines team effectiveness. In these studies, the team task environment is typically framed as a critical boundary condition or as a moderator of effects (Kozlowski & Bell, 2003)—thus creating a situation for fit or misfit on the basis of the team task environment. Key task characteristics that are often considered include uncertainty (Van de Ven et al., 1976), degree of (cooperative and conflicting) interdependence (e.g., Steiner, 1972; McGrath, 1984), and task-related time pressure (e.g., Wittenbaum et al., 1998).

The multiple forms of external fit in teams, all operating at the team level, are conceptualized as the fit or congruence between the team task environment and the four linking mechanisms: team structure, rewards, technology, and processes/emergent states (see Fig. 8–1). Although each of these dimensions of external fit is supported in the literature, the fit relationship between team task environment and team processes/emergent states has been given the most empirical attention. Numerous empirical studies provide evidence for a contingency-based relationship between task environment and a variety of team processes/emergent states, including conflict (Jehn, 1995; De Dreu & Weingart, 2003), decision-making processes (Bonner, Baumann, & Dalal, 2002), and information sharing (Alper, Tjosvold, & Law, 1998). Although some of these studies only go as far as to identify the contingency or interaction between two variables, results from these studies should inform future research that specifies the level of each variable, which in turn creates a fit relationship.

Several distinct dimensions of the team task environment that moderate the effects of intrateam conflict on team effectiveness have been identified in empirical research. Jehn (1995), in a study of 105 work and management teams, showed that the effect of conflict on team effectiveness can be either positive or negative, depending on whether the task environment is novel or routine in nature. Specifically, task conflict in teams performing very routine tasks was found to be detrimental to team performance. On the other hand, task conflict in teams engaged in nonroutine tasks did not have a negative effect on team performance and in some cases was actually beneficial. Through interviews and observations, Jehn (1995) illustrated that effective teams in nonroutine task environments had high levels of task conflict and norms fostering open dialogue of team and task-related problems. This open debate about task conflict promoted critical evaluation and better problem solving within these teams, thus leading to superior team performance in this particular task environment.

De Dreu and Weingart (2003), in a meta-analysis of task and relationship conflict, also explored the contingent relationship between conflict and team task environment by focusing on the complexity of the task. In this study, relationship and task conflict were found to have strong and negative correlations with team performance and team member satisfaction. Interestingly, relationship and task-based conflict were found to have stronger negative relations with team performance in highly complex (e.g., decision-making) tasks than in less complex (production) tasks. In general, the emerging consensus is that task conflict is unhelpful for teams. As Ilgen et al. (2005) pointed out, the best context for team functioning is not one that is marked by conflict but rather one characterized by unemotional debate, trust among team members, openness to different ideas, and an ability to resist pressures to quickly compromise or reach premature consensus.

Similar to the contingent relationship between conflict and the team task environment, the decision-making processes within teams are also dependent on the nature of the task environment. Bonner et al. (2002) assessed the decision-making patterns of teams operating in both moderately difficult and simple task environments. Teams in moderately difficult task environments were found to adjust their decision-making processes to overweight the input of high-ability team members and underweight input from lower-ability team members. Teams working on simple tasks, however, did not adjust their decision-making routines according to differences in ability among team members. Interestingly, the form of decision making did not affect decision-making performance in this study. In other words, teams able to identify the relevant expert in the team did not perform better than other teams. Quite possibly, what teams gained by identifying the expert in the team was countered by reductions in teamwork, team effort, or team cohesiveness as a result of overweighting the input of the expert individual.

Beyond conflict and decision making, several researchers have examined the fit relationship between team task environment and information-sharing processes within teams. Alper et al. (1998), in a study of 60 self-managing teams, focused on the degree to which task-related goal interdependence was structured cooperatively or competitively and the subsequent interaction with information sharing in the team context. They found that the degree to which teams communicate and share information is contingent on the cooperative or competitive environment. Specifically, teams in a cooperative environment discussed opposing views openly and constructively in such a way that positively contributed to overall team effectiveness. Teams in a competitive environment, on the other hand, did not engage in this same constructive form of information sharing and, in turn, suffered from inferior team effectiveness.

Continuing with the dimensions of external fit, Deutsch (1949b) was one of the first researchers to declare that rewards enhance team perform-

ance only if the reward structure produces a win–win situation (i.e., cooperative) in which all team members benefit if the team is successful. Since then, others (e.g., Wageman, 1997) have also identified team-based rewards as a critical success factor for team performance. In contrast, several empirical studies have shown that actually (a) cooperative reward structures enhance performance only under certain conditions and (b) competitive reward structures can have a positive effect on team performance. Wageman and Baker (1997), for instance, demonstrated that high reward interdependence (i.e., team-based rewards) leads to superior team performance in extremely high or low task interdependence environments. When the task environment is moderately interdependent, however, a reward system with more moderate interdependence resulted in higher team performance.

Beersma et al. (2003), in their study of 75 four-person teams, found similar contingencies in their examination of differing impacts of reward structures on speed and accuracy dimensions of tasks. Beyond just classifying tasks based on degree of interdependence, a specific task can also be differentiated in terms of whether it demands speed, accuracy, or both speed and accuracy in its execution. For many tasks, the speed and accuracy dimensions represent a trade-off that must be made. In general, findings from this study suggested that competitive reward structures enhance the speed dimension of the task, but cooperative reward structures enhance the accuracy dimension of the task. Thus, the appropriate reward system depends on the nature of the team task environment, including the degree of interdependence and the relative importance placed on speed or accuracy when the task is executed.

Regarding team structure, several recent studies illustrate the impact fit or misfit between the team task environment and team structure can have on team effectiveness. Stewart and Barrick (2000) established that there is a distinction between conceptual and behavioral-oriented task environments. Accordingly, teams with an interdependent structure and engaged primarily in conceptual tasks exhibit a U-shaped performance curve. In contrast, teams with the same structure but engaged in primarily behavioral tasks experience an inverted U-shaped performance curve. Hollenbeck et al. (2002) examined the fit between team structure and task environment and concluded that divisional team structures are superior in unpredictable task environments and functional team structures are superior in predictable task environments.

Finally, as the need for teams to operate across partially or fully distributed locations (e.g., virtual teams) has intensified, interest in determining which forms of technology engender superior team performance within these environments has become an important area of inquiry. Several empirical researchers have begun to examine the fit or contingency-based relationship between team task environment and technology. For instance, a series of studies on flight crews by Sarter and colleagues (Sarter

& Schroeder, 2001; Sarter & Woods, 1997, 2000) examined (a) the challenges associated with automation in highly autonomous and complex task environments and (b) the role of decision support systems in high-risk task environments (e.g., flight and medicine). Findings from this research suggest that certain forms of technology may foster superior performance, given certain team task characteristics. For instance, in high-risk task environments, decision support systems that simply communicate monitoring or status-related information may be preferable to command systems that indicate a specific action to be taken, as the former are less vulnerable to automation biases such as using information without questioning its accuracy.

TOWARD A THEORY OF FIT IN TEAMS: DIRECTIONS FOR FUTURE RESEARCH

As evidenced by the preceding literature review, empirical research exists to support the conceptual framework of internal and external fit in teams that is presented in this chapter. The framework is also helpful in identifying specific dimensions of fit that deserve or need greater attention in future empirical research. Where this framework falls short is in building a theory of internal and external fit in teams. Hempel (1965) pointed out that science has two basic functions: (a) to adequately describe the objects and events being investigated and (b) to establish theories by which events and objects can be explained and predicted. The framework presented here is not a theoretical statement but does provide a valuable description that should be the source for developing a theory of fit in teams.

As Bacharach (1989) indicated, a theory is a system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses. Further, this theoretical system is bounded by a set of assumptions and conditions. To develop a theory of fit in teams, we must identify the boundaries of the theory and further explain which variables and constructs are relevant and how these variables and constructs relate to each other. In other words, we must identify which underlying values and spatial and temporal assumptions bound the theory. We must more clearly state the relationships among constructs, including but not limited to stating (a) how the linking mechanisms in the framework relate to each other and (b) if and how the linking mechanisms mediate the relationship between internal and external fit and team effectiveness. Not until we extend this framework to the development of a theory can the role of fit in teams be evaluated in terms of falsifiability and utility (Bacharach, 1989).

Despite its theoretical limitations, the framework of internal and external fit in teams serves as a valuable reference for establishing future research priorities. Upon examining Table 8–1, we can determine which dimensions

of fit are adequately covered and best understood as well as those dimensions that are prime targets for future inquiry. Specific to the dimensions of internal fit, the contingency-based relationships between team composition and team rewards, structure, and technology need to be further explored. Specifically, those researching team rewards should explore the relationship between cooperative and competitive reward systems and elements of team composition other than personality, including but not limited to ability, affect, and experience. Future researchers on team structures should consider the contingencies associated with different structural forms within teams as well as compositional factors other than personality. Lastly, research should build on Simons et al.'s (1999) study and explore how different conceptualizations of team composition interact with various team processes/emergent states to influence team effectiveness.

With respect to the dimensions of external fit, the contingency-based relationships between the team task environment and the four linking mechanisms (team processes/emergent states, team rewards, structure, and technology) are beginning to emerge as important areas of study. These are areas for which additional conceptual development and empirical research are greatly needed. For instance, an understanding of how team reward structures fit or misfit with varying levels of task complexity or novelty and how that level of fit influences team effectiveness would be highly valuable. Also, determining which team processes work best within certain team task environments would be a considerable leap forward in our understanding of how best to manage work teams.

Beyond the specific dimensions of fit noted in the framework for internal and external fit in teams, there are several additional topics related to fit in teams that we feel are extremely important for future researchers to consider. These areas include the degree to which both internal and external fit are needed for engendering team effectiveness and the role of time in the study of fit in teams. First, a deep understanding of the differential importance of and potential interactions between dimensions of internal and external fit in teams is critical. Studies such as that by Hollenbeck et al. (2002) clearly showed that certain dimensions of fit, when in a state of fit, can neutralize states of misfit in other dimensions. This particular study raised a fundamental question about which dimensions of fit, both internal and external, can neutralize or potentially amplify the impact on team effectiveness.

Furthermore, under what conditions must teams achieve both internal and external fit to subsequently engender team effectiveness, or are there certain circumstances where only having internal or external fit is satisfactory? For those conditions that require both internal and external fit, which dimension of fit should be achieved first? One perspective is that external fit may need to come first because the team may have more control over compositional factors than it does over the nature of the task at hand. In this case, the team would achieve external fit first by aligning the

team's processes, structures, rewards, and technologies with the team task environment and subsequently align the team's composition with the characteristics of the linking mechanisms. Alternatively, if a team has influence over what tasks it accepts but no influence over the composition of the team, then the team may need to achieve internal fit first and then only accept those tasks that fit with the existing team processes, structure, rewards, and technologies. Thus, achievement of both internal and external fit may demand a specific sequence, and the most appropriate sequence may be contingent on what dimensions the team can influence.

Secondly, teams operate over time and in context. The framework of internal and external fit in teams establishes the theoretical rationale for inquiry into the antecedents, contextual factors, and outcomes associated with teams moving in and out of internal or external fit. For instance, the composition of teams can change over time. As new members enter the team, the team may enter a state of misfit on the person–team fit dimension. Given the evidence suggesting that the effects of team composition and levels of diversity on team effectiveness can actually change over time (Earley & Mosakowski, 2000), this is an extremely important consideration. A similar case can be made for the external fit in teams when considering how team tasks can change over time. If misfit is the difference between actual and optimal, what are the implications associated with teams moving off of this optimal fit line, why and under what conditions do teams move off of the optimal line, and what team processes or interventions actually facilitate regaining optimal fit?

CONCLUSION

The traditional I–P–O frameworks that have been used to organize research on team effectiveness do not adequately address the true complexity inherent in work teams and, thus, although valuable, are insufficient for explaining team effectiveness. Ever since Woodward's (1965) pioneering contingency study, in which he examined the fit between technology and organizational structure, congruence has been seen as the exemplar of fit–performance relationships. In this chapter, by building on these established congruence or contingency-based perspectives, we establish a framework that begins to explain the role of fit in teams. Extending the linearly focused I–P–O models of team effectiveness, this framework establishes a more integrative perspective using the internal and external fit relationships that are most important to team effectiveness.

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