Work Teams

Steve W. J. Kozlowski
Michigan State University

Bradford S. Bell
Cornell University

OUTLINE

KEYWORDS

collective efficacy
team building
team composition
team design
team development
team diversity
team effectiveness
team mental models
team learning
team performance
team processes
team training
team types
transactive memory
work team

Citation:

Kozlowski, S. W. J., & Bell, B. S. (2017). Work teams. *Reference Module in Neuroscience and Biobehavioral Psychology*. St. Louis: Elsevier: 1-6.

GLOSSARY

work team: A collective of two or more individuals that performs organizationally relevant tasks, shares one or more common goals, interacts, exhibits task interdependencies, manages boundaries, and is embedded in a broader organizational context.

team composition: The collective attributes of team members, with an emphasis on how the similarities, differences, and combination of member attributes influence team processes and effectiveness.

team development: The progression of a newly formed team from a loose collection of individuals to a well integrated collective capable of coordinating effort to accomplish the team's task.

team processes: Cognitive, affective, and behavioral mechanisms that enable team members to combine the potential of their attributes and resources to resolve constraints, coordinate effort, and achieve success.

team effectiveness: A multifaceted factor defined by the degree of the team's productive output, satisfaction of member needs, and the willingness of members to continue working together.

I. ABSTRACT

Work teams are composed of two or more individuals; who exist to perform organizationally relevant tasks; share one or more common goals; interact socially; exhibit interdependencies in task workflows, goals, and/or outcomes; maintain and manage boundaries; and are embedded in a broader organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the organization. Work team effectiveness is enabled by team processes that combine individual efforts into a collective product.

II. Introduction

The idea of people working together in teams is certainly not a new idea, as it is quite likely that our human ancestors combined their skills and strength for the basic survival functions of hunting and defense, and the tale of our history is represented by groups working together to explore, achieve, and conquer. Yet, as the modern concept of work in large organizations developed during the 20th century, it was primarily centered on *individual* jobs. Over the last two decades, however, strategic, economic, and technological forces have prompted organizations world-wide to substantially restructure work around interdependent teams. Teams allow more diverse skills and experience to bear on a problem, and provide the potential for more flexible and adaptive responses to the unexpected. For example, organizations can use cross-functional teams to pull together the expertise needed to tackle complex problems and can use virtual team arrangements to link these experts regardless of where they might be located. Although work teams offer organizations many potential benefits, they also present challenges: grouping people together into teams does not guarantee that they will be effective.

Most theoretical frameworks for understanding team effectiveness—either implicitly or explicitly—follow the Input→Process→Output (IPO) logic posed by McGrath in 1964. *Inputs* represent the characteristics of individual members (e.g., abilities, skills, personality, demographics), task requirements and interdependencies (i.e., workflow, goal, or outcome linkages), and organizational factors (e.g., leadership, training, resources). From a normative perspective, these factors can be viewed as a set of resources that can contribute to, and constraints that have to be resolved, for the team to be effective. *Processes* represent the psychological mechanisms that enable team members to combine the potential of

their characteristics and resources to resolve the constraints and achieve success. In particular, the task as a source of interdependence requirements is a key constraint that has to be resolved. *Outcomes* represent internal and external evaluations of team performance and the effect of the experience on team members. When team members synergistically combine the potential of their characteristics and resources to enact team processes that fit or resolve the constraints—creating *synergy* or *process gains*—their performance is effective. When team members fail to combine their potential, the resulting *process loss* impedes effectiveness. Indeed, the inability to capitalize on the potential of team members in cohesive decision making groups can lead to catastrophic failures such as those described by Janis in his 1982 book on the phenomenon he labeled *groupthink*. Certainly, we've all seen teams that failed to live up to their potential.

This article will attempt to distill key factors that responsible for effective work teams, including team types and task characteristics, member composition, team development, and processes that enable individuals to successfully combine their efforts to achieve team products.

III. Team Types and Task Characteristics

One challenge to understanding team effectiveness is that teams come in a variety of different forms, with new forms being invented to meet emerging needs (e.g., transnational, virtual teams). Team forms have different constraints and therefore require different process mechanisms for effective performance: One size does not fit all. In an effort to better document these differences, team researchers have developed typologies to classify team forms as shown in Table I. Other researchers have argued that classification per se does not advance understanding of the constraining factors that distinguish teams, and that a more useful approach is to identify the underlying dimensions that distinguish team types. In a 2013 review, Kozlowski and Bell posited a set of four dimensions for characterizing team complexity: (1) external environment or organizational context in terms of its (a) dynamics and (b) degree of required coupling; (2) workflow interdependence with its implications for (a) role, (b) goal, and (c) process linkages, (3) team member (a) composition, (b) diversity, (c) proximity/spatial distribution, and (d) stability; and (4)

temporal characteristics that determine the nature of (a) performance episodes and cycles, (b) developmental progression, and (c) the team life cycle.

<insert Table I about here>

The team task is a critical characteristic distinguishing teams both within and across types. In 1972, Steiner presented a classic typology of team tasks based on the complexity of member interdependence and resulting coordination demands required for the combination of member effort. For example, simple additive tasks sum individual work effort or products (e.g., a rope pull, a typing pool). Conjunctive tasks are limited by the performance of the weakest team member (e.g., mountaineering), whereas performance on disjunctive tasks is determined by the strongest member (e.g., problem solving). In organizations, more complex discretionary tasks allow wide latitude for how members combine their efforts, necessitating that members monitor and coordinate effort to accomplish collective outcomes. As we will discuss later, it is these demands for active, coordinated interdependence that place similarly complex demands on enabling team processes. Configuring team processes to fit the demands and constraints imposed by the team's task interdependence is the key to creating effective work teams.

IV. Team Composition

As mentioned previously, one set of inputs that influence team effectiveness is the characteristics of individual members. Recognizing that team processes and performance will be influenced by the number and type of people who are its members, considerable research has focused on the effects of team composition. One issue that has garnered attention concerns the best size for various types of teams. Although it is tempting to try to simplify this issue through broad-based recommendations (e.g., more is better), it appears that the "optimal" group size depends on a number of specific contingencies, such as the level of interdependency required by the team's task and the stability of the external environment. The extent to which team processes and outcomes are influenced by the homogeneity or heterogeneity of member demographic characteristics is another issue that has been the focus of considerable attention. Like team size, whether diversity is advantageous or detrimental to team functioning and performance appears to depend on a number of factors. Research suggests that differences in underlying (i.e., deep-

level) characteristics, such as functional background, tend to have more positive effects on team effectiveness than differences in social-category (i.e., surface-level) characteristics, such as race or gender. However, this assumes that the group process is carefully controlled and it is important to recognize that the effects of diversity can depend on contextual factors (e.g., the team's task) and temporal issues (e.g., life cycle stage). Research on demographic diversity has also been extended to consider the team composition effects of factors like personality and cognitive ability on team effectiveness. Team-level conscientiousness and agreeableness, both personality traits, as well as team cognitive ability have been shown to be fairly potent, positive predictors of team effectiveness. There is also some research that suggests that the effects of personality depend on the task and the amount of team member interaction required for effective performance, whereas cognitive ability appears to have more consistent effects across different types of team tasks (e.g., intellectual, physical). Future research will shed more light on such issues.

Team composition has been a popular topic because of its theoretical and practical implications. Theoretically, team composition research goes to the heart of understanding how individual attributes combine to form effective interdependent groups. An even better understanding of such issues should emerge in upcoming years as researchers focus more attention on clearly articulating the processes by which individual actions contribute to collective team outcomes. Practically, an understanding of team composition can serve as a valuable tool for selecting and constructing effective teams. Recommendations generated from this research can help guide staffing efforts designed to produce the optimal blend of employee characteristics and can be used to effectively manage the diversity that exists in today's transnational and virtual teams.

V. Team Development

Existing teams with an ongoing lifespan will have outflows and inflows of new members, necessitating a process of socializing newcomers to adopt team norms, values, and goal expectations. Although there is a solid research foundation for understanding socialization to organizations, there is virtually no research pertaining to team socialization. In other instances, teams are formed anew. This is a common practice in

organizations as project or virtual teams are formed to address specific problems. New teams go through a developmental process as individuals endeavor to enact norms, values, and goal expectations to guide their interaction and efforts.

Much of the conceptual work in this area takes a *descriptive perspective* in that they endeavor to characterize the natural process of group development. Stage models, such as the much imitated classic posed by Tuckman in 1965, describe a linear series of developmental stages to capture the team lifecycle: forming, storming, norming, and performing. During the *forming* stage, team members first come together and begin to explore the group. They attempt to define the group task and to structure how they will accomplish it. There can be considerable ambiguity and differences of opinion as members realize that accomplishing the group task will be difficult. Lack of structure and ambiguity promote conflict, which typifies a shift to the *storming* stage. Disagreement and dismay ensue as members argue about group actions and form factions. With time, the group shifts to *norming*, as ground rules, roles, and goals are clarified and established. Conflict is replaced by cooperation, and members develop a sense of cohesion. With these normative expectations in place, the group shifts to the *performing* stage, with a focus on task accomplishment. Members are able to prevent or resolve intra-group conflict when it arises. They become attached to the team, and derive satisfaction from progress toward collective goals.

Although some developmental process is necessary for members of new teams to develop a normative structure to guide interactions, this stage model illustrates that the process can be costly in terms of time and emotion. As a result, a variety of "team building" interventions have been proposed in an effort to improve the normative structure of teams. Unfortunately, most often such interventions are provided *after* teams have developed and enduring problems have been created.

The model proposed by Tuckman was based on groups working on unstructured tasks (i.e., clinical, therapy, and T-groups), and therefore heavily emphasizes interpersonal processes as individuals struggle to create some structure to guide their interactions. In a classic 1988 article, Gersick presented another descriptive model of group development based on the observation of 8 work and 8 student project teams that described the process as a two-stage *punctuated equilibrium*. The key factor in this model is the

entrainment of group development to an external deadline that paced progress. Very early group interactions set norms that patterned activity to the midpoint of the groups' lifecycle (deadline). At that point there was a significant transformation—the punctuated equilibrium. Groups reorganized and focused on task achievement. Although some scholars regard the models as conflicting, recent research by Chang and colleagues reported complementary processes of linear progression—indicative of Tuckman and other stage models—and temporal entrainment—indicative of Gersick's punctuated equilibrium. Thus, both models exhibit evidence for their descriptive validity with respect to developmental processes that occur naturally. From an application perspective, however, the focus is more on prompting optimal processes rather than on what happens naturally. Thus, in contrast to the descriptive approach, *prescriptive or normative approaches* specify desirable conditions that should be created to foster better or faster development by targeting team processes that underlie team effectiveness. As we discuss later, normative approaches provide a basis for designing interventions.

VI. Team Processes and Performance

Efforts to understand the nature of team processes and how team processes contribute to or inhibit effective performance has been a source of considerable research attention. There are literally thousands of research articles addressing these issues. Social psychology research on small groups has tended to focus on *interpersonal* processes that influence the nature and quality of member attraction and interaction, with relatively little attention to the group task. In contrast, research on work teams accepts the importance of interpersonal processes, but treats the team task as central and focuses more attention on processes that reflect task-driven interactions. In their 2013 review on work teams, Kozlowski and Bell classified team processes into cognitive, affective-motivational, and behavioral mechanisms in an effort to organize this research. Descriptions of key process mechanisms that influence the performance of work teams are summarized in Table II.

<insert Table II about here>

Cognition is a property of individuals, but team members need to act in concert. Cognitive mechanisms attempt to capture in a collective fashion team members' task relevant perceptions, knowledge, or

information. A prominent approach posits that team processes and performance are enhanced when members *share* a common understanding of the task environment (mental models), its goal-role-strategy requirements (coherence), and perceptions of imperatives from the broader organizational context (climate). Recent findings support the positive relationship between mental models and team effectiveness, but also suggest that the strength of the relationship depends on a number of factors, such as the level of team interdependence. Other approaches posit that knowledge and information do not need to be shared per se, rather it is the availability and access to the informational resources that make it useful to the team. For example, transactive memory is based on the idea that different team members will attend to different information and will know different things. So long as members know 'who knows what' the information can be available to the team collectively. Similarly, team learning is a complex process that entails both individual and collective components. Work on these latter mechanisms is gaining momentum and is promising, although there is a need for research that addresses measurement issues and examines the factors that shape the development of these mechanisms.

Affective and motivational processes are also important. In addition to what team members know, the extent to which they bond to the team and its task, interact smoothly with minimal conflict, and are motivated to accomplish the team mission positively influences team effectiveness. For example, research indicates that group cohesion contributes positively to team performance, particularly on tasks that require a high level of interdependence. Research also suggests that conflict is generally detrimental to team effectiveness, but may have positive consequences under very specific conditions. Future research is needed to identify the conditions under which conflict may enhance team performance. Of particular importance is maturing work that gets at team motivational processes in the form of collective efficacy—a shared sense of group competence—that influences goals teams set, effort they expend for achievement, and their persistence in the face of challenges. Meta-analytic findings indicate that collective efficacy is an important predictor of team performance. Future research is needed to better understand the antecedents of collective efficacy so as to guide practical efforts aimed at building efficacy in teams.

Cognitive and affective-motivational processes capture what teams think, how they feel, and what they are *prepared* to do. Behavioral processes represent what team members *actually* do to combine individual effort and action to accomplish team outcomes. One of the challenges of working in teams is that individuals have to allocate effort to accomplish their own responsibilities, but also have to cooperatively aid others and the team as a whole. For simple tasks, the degree of cooperation is discretionary and largely guided by normative expectations. Complex tasks, however, have interdependence demands that place exacting requirements on whom, needs to do what, and when. These demands for temporal pacing, synchronicity, and entrainment distinguish coordination from discretionary cooperation. Communication helps to enable both cooperation and coordination.

VII. Building and Managing Effective Teams

Given the increasing use of and importance of work teams, one might imagine that there is substantial interest in designing, selecting, training, and leading teams to be effective. And, indeed, there is. This is a huge area for application. It is also the case, however, that much of what passes for practice in this area is not based on a solid scientific foundation. It is not possible to conduct a thorough summary of this area in the brief space available. We can, however, identify in aggregate those areas of practice that have merit and those that are open to question. As for specific interventions available in the marketplace, *caveat emptor* is appropriate advice.

Teams are often constructed and thrown together with little thought about what factors need to be in place to help ensure that the team has the potential to be effective. A model proposed by Hackman in 1987 takes a prescriptive perspective on team design that specifies factors necessary to support team processes that contribute to team effectiveness. The model proposes that there must be (1) a supportive organizational context that provides necessary (a) skills via training, (b) information, and (c) motivating rewards; (2) an appropriate group structure with (a) a team composition of the right mix of knowledge and skills, (b) norms to guide processes, and (c) motivation to achieve; and (3) coaching, leadership, and support systems that provide needed resources and to reduce obstacles. Teams meeting these design specification are expected to be more effective in terms of performance, member need satisfaction, and

team viability over time. This is a very useful conceptual framework for thinking about what conditions have to be created by design to promote team effectiveness.

With respect to more specific interventions, several of the areas summarized in this entry have relevance. For example, team composition research has the potential to guide the combination of individual characteristics (e.g., ability, personality, knowledge, skill) to meet team design specifications. Research on these characteristics and their influence on team performance is growing. The area of team development also has the potential to contribute to team effectiveness by creating a normative structure to guide team processes. Indeed, a variety of interventions that fall under the rubric of "team building" are purported to do just that. Recent meta-analytic findings suggest that team building has a positive effect on team outcomes, particularly among larger teams (i.e., > 10 members). However, there are still relatively few rigorous empirical studies in this area and we do not yet understand the factors that moderate the effects of team building. For instance, team building interventions are often delivered to teams well after team development has concluded. It is quite likely that it is far more difficult to change team norms after they have been established, than to influence and shape them during early team development. Thus, the timing of team building interventions may be critical to their potential to be effective. Recent theory and research points to team leaders as playing a pivotal role in the development of effective teams by instilling a shared vision of the team's mission, creating a climate supportive of that mission, instructing coherent goal-role-strategy linkages (e.g., mental models), building task cohesion, and prompting collective efficacy during early team formation and development. This work is promising.

In addition, team training is an area that has amassed a sufficient research foundation—a science of team training—to usefully guide application. A 2008 meta-analysis by Salas and colleagues provided evidence that there are a number of training techniques that can be used to enhance team effectiveness, including cross-training (to allow members to understand others task requirements) and coordination training (to enable better combination of effort). These and other team training techniques target the attitudes (e.g., collective orientation), behaviors (e.g., compensatory behavior), and cognitions (e.g., shared knowledge) that underlie team effectiveness.

VIII. Conclusion

A host of strategic, economic, and technological forces have prompted a recent and steady shift from work organized around individuals to team-based work structures. As teams pervade modern work organizations, team effectiveness becomes an increasingly important driver of organizational success. Fortunately, there has been commensurate growth in the amount of research devoted to understanding teams and team effectiveness in work settings and, as this chapter highlights, we have learned a great deal about the many different factors that impinge upon team effectiveness. Much work still needs to be done, but we believe that existing knowledge and recent advances will spur future developments in the understanding of work teams.

IX. Change History: August 2015. SWJ Kozlowski and BS Bell made changes in sections 'Team Types and Task Characteristics', 'Team Composition', 'Team Processes and Performance', and 'Building and Managing Effective Teams', and updated further readings.

X. Further Reading

Bell, B. S., & Kozlowski, S. W. J. (2002). Virtual teams: Implications for leadership. *Group and Organization Management, 27,* 12-49.

Bell, B. S., Kozlowski, S. W. J., & Blawath, S. (2012). Team learning: A review and integration. In S. W. J. Kozlowski (Ed.), *The Oxford Handbook of Organizational Psychology* (vol. 2, pp. 859-909). Oxford, UK: Oxford University Press.

Chang, A., Bordia, P., & Duck, J. (2003). Punctuated equilibrium and linear progression: Toward a new understanding of group development. *Academy of Management Journal, 46,* 106-117.

Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal, 31,* 9-41.

Hackman, J. R. (1987). The design of work teams. In J. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). New York: Prentice Hall.

Janis, I. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes* (2nd ed.). Boston: Houghton Mifflin.

Kozlowski, S. W. J., & Bell, B. S. (2013). Work groups and teams in organizations. In N. Schmitt & S. Highhouse (Eds.), *Handbook of Psychology* (2nd Edition, vol. 12: Industrial and Organizational Psychology, pp. 412-469). Hoboken, NJ: Wiley.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77-124.

Mannix, E., & Neale, M. A. (2005). What differences make a difference? The promise and reality of diverse teams in organizations. *Psychological Science in the Public Interest, 6(2),* 31-55.

McGrath, J. E. (1964). *Social psychology: A brief introduction.* New York: Holt, Rinehart, & Winston.

Salas, E., DiazGranados, D., Klein, C., Burke, C. S., Stagl, K. C., Goodwin, G. F., et al. (2008). Does team training improve team performance? A meta-analysis. *Human Factors*, *50*(6), 903-933.

Steiner, I. D. (1972). *Group process and productivity.* New York: Academic Press.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin, 63,* 384-399.

Table I

Types of Work Teams

Team Category	*Key Distinguishing Characteristics*	*Exemplars*
Production	Core employees who cyclically produce tangible products and vary on discretion from supervisor-led to semi-autonomous.	– Automobile assembly – Mining units – Wood harvesting units
Service	Engage in repeated interactions with customers who have different needs, making the nature of the transactions variable.	– Insurance service groups – Retail store teams – Hospital service teams
Management	Senior managers of meaningful business units with primary responsibility for directing and coordinating lower level units under their authority.	– Bank management teams – Health care teams – Division management teams
Project	Temporary entities that execute specialized, time-constrained tasks and then disband. Are generally cross-functional.	– New-product teams – R&D project groups – Process improvement teams
Action/Performing	Composed of interdependent experts who engage in complex, time-constrained performance events involving audiences, adversaries, or challenging environments.	– Military tank crews – Rescue units – Professional musician groups
Advisory	Temporary groups designed to solve problems and recommend solutions. Work outside of, and in parallel with, production processes.	– Quality circles – Employee involvement teams – Selection committees
Crews	Characterized by the capability and necessity to form and be immediately prepared to perform together effectively. Membership is dynamic and highly expert.	– Aircraft crews – Military combat units – Surgical teams
Top Management	Teams composed of individuals at the executive level of an organization or corporation.	– Corporate executive groups – Hospital top management teams.
Transnational	Global or international teams. Membership often spans national, cultural, and organizational boundaries.	– Global sales teams – Multinational R&D teams
Virtual	Teams whose members are dispersed in space and interact through communication and information-sharing technologies.	– Distributed work teams – Air traffic control teams – Mission control teams – Military command & control

Table II

Summary of Cognitive, Behavioral, and Affective/Motivational Processes that Underlie Team Effectiveness

Cognitive		***Affective/Motivational***		***Behavioral***	
Process	***Description***	***Process***	***Description***	***Process***	***Description***
~ Mental Models	~ Team members' shared, organized understanding and knowledge about key elements of the team's task environment.	~ Cohesion	~ Combination of shared commitment or attraction to the team task or goal and team members' attraction to or liking of the group.	~ Coordination	~ Activities required to manage interdependencies with the team workflow.
~ Team climate	~ Team-level shared perceptions of important contextual factors that affect team functioning.	~ Collective mood	~ Team emotion or affective tone. Examines how individual-level emotions combine at the team-level.	~ Cooperation	~ The willful contribution of personal efforts to the completion of interdependent jobs.
~ Team coherence	~ Shared comprehension of the task situation and corresponding goals, strategies, and role linkages.	~ Collective efficacy	~ A team's shared belief in its own collective ability to organize and execute course of action required to produce given levels of attainment.	~ Communication	~ Taskwork communication involves exchanging task-related information and developing team solutions. Teamwork communication focuses on establishing patterns of interaction.
~ Transactive memory	~ Team-level shared system for encoding, storing, and retrieving information.	~ Group potency	~ The collective belief of a group that it can be effective.		
~ Team learning	~ Relatively permanent changes in the knowledge of an interdependent set of individuals associated with experience.	~ Conflict (divisiveness)	~ Can manifest as task conflict (disagreement about task content) and/or interpersonal conflict (interpersonal incompatibilities).		