

# Introduction

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## The Psychology of Teamwork and Collaborative Processes

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### Introduction

Teams are an integral part of society. This handbook endeavors to tease apart the psychological aspects of teamwork and understand the applications and ramifications of teams, both within organizations and in society at large. In this short introductory chapter, we aim to briefly review the nature of teams and the developing research agenda, before highlighting the chapters contained in this book.

### What Are Teams?

While the layperson may understand a team simply as a group of people, the scientific literature has spent considerable effort exploring and defining distinguishing characteristics. What makes a given group of people a team – that is, what sets it apart from any other unit? At its core, a team can be operationalized as a set of *two or more individuals* that *adaptively and dynamically interacts* through *specified roles* as they work towards *shared and valued goals* (Dyer, 1984; Salas, Dickinson, Converse, & Tannenbaum, 1992). Researchers have also identified several other features that characterize the unique dynamics specific to teams, including: existing to perform organizationally relevant tasks; exhibiting task interdependencies (e.g., workflow, goals, knowledge, and outcomes); interacting socially (face-to-face or virtually); maintaining and managing boundaries; and being embedded within an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity (Arrow, McGrath, & Berdahl, 2000; Hackman, 1987; Kozlowski & Bell, 2003; Kozlowski, Gully, Nason, & Smith, 1999; Salas et al., 1992). Clearly, teams are more than just a collection of people; they are functional units, a complex and crucial

component of broader human systems. While the science of teams has been expanding rapidly in academic spheres, so too has their import in practice.

Since the late 20th century, the global economy has seen drastic changes economically, strategically, and technologically. In response, organizations have shifted, from focusing on hierarchically structured, individual work to structuring of collective efforts more efficiently (Lawler, Mohrman, & Ledford, 1995). Owing to increasing competition, consolidation, and innovation, organizations must tap into, and make sense of, diverse skills, expertise, and experience. Accordingly, teams have emerged as a core building block of organizations (Kozlowski & Bell, 2012). Much can be accomplished when many minds are put together.

The growing awareness of teamwork in the public consciousness, however, is not the only compelling reason for its study. Teams are historically and demonstrably essential to the functioning of organizations and societies. Failing to value and invest in teamwork can have catastrophic consequences, varying in scope from the relatively personal (e.g., a surgery) to the international (e.g., a military engagement). Oftentimes, such unfortunate turns of events can be prevented or contained if participants had been able to coordinate their efforts, adapt to the environment, and overcome stressors as a unit (Salas, Stagl, & Burke, 2004). The promotion of synchronicity in teams has therefore come to the forefront as a crucial way to affect change and influence outcomes. This handbook therefore begins by breaking down the basic theoretical underpinnings of teams before understanding their importance across differing contexts, and looking towards the future of research and practice.

## **The Developing Research Agenda for Teamwork**

Our hope in writing this book was to develop a rich, comprehensive resource on the psychology of teamwork for those in academia and industry alike. This handbook is intended to offer students breadth and depth of knowledge and researchers a sound and stimulating basis upon which to build their lines of inquiry, while also elucidating evidence-based practices useful to scholar-practitioners. In order to facilitate deeper understanding, it has been organized to take readers from a macro to a micro perspective on teams, beginning with broad strokes and narrowing down to more specific, detailed components.

### **Part I**

The first section of the handbook gives a bird's-eye view of the teamwork literature. The authors describe factors that influence team performance, in terms of overall effectiveness, contextual efficiency, and intrateam synchronicity. These chapters give a general summary of teams in terms of psychological dynamics and greater societal significance.

Part I begins with a chapter by Julie V. Dinh and Eduardo Salas, which provides an overview of the processes underlying teamwork. While both taskwork (e.g., work-related goals) and teamwork (the behavioral, attitudinal, and cognitive interactions that drive such performance) are critical for efficient team performance, it is paramount to understand and strongly implement the latter across contexts. In particular, nine critical considerations, based on earlier work (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2015), shape the nature of teamwork, including core processes and emergent states – conflict, coordination, communication, coaching, and cognition – and contextual factors – composition, culture, and context. The model examined in this chapter captures the team dynamics explored in further detail later in the handbook.

In Chapter 3, Daniel J. Slyngstad, Gia DeMichele, and Maritza R. Salazar discuss team performance. The chapter provides a thorough review of conceptualizations of performance before proposing a three-dimensional framework by which to judge team functional utility. They pay special attention to knowledge work, which, due to its inherent complexity, can pose unique challenges in performance measurement. The conclusion synthesizes strong theoretical and empirical research into an integrative framework for team effectiveness in knowledge work.

Chapter 4 examines team effectiveness from a transnational perspective. Dana Verhoveen, Tiffany Cooper, Michelle Flynn, and Marissa L. Shuffler explore team performance through a theoretical lens of cultural diversity within a team. This approach is particularly useful given today's rapid globalization and its ramifications for team performance across contexts (such as the development and functioning of geographically dispersed teams). The chapter follows the input-process-output (IPO) framework to discuss, in detail, the components of team effectiveness, before offering alternate, comprehensive models and future directions for research.

## Part II

Having set a comprehensive framework through which to understand teams, the second section of the handbook focuses on antecedents of team effectiveness. Each of the chapters addresses considerations regarding the formation and structure of teams, including design, composition, diversity, membership, and status.

The first step in creating a team is understanding and responding to the constraints in which it will operate. Current socioeconomic trends have forced researchers and practitioners to rethink how they organize the work and design teams that compose organizations. Today, teams are frequently formed and disbanded rapidly, distributed across multiple sites, and composed of members simultaneously working on myriad projects, with different bosses competing for their attention. "Further, these teams' work increasingly demands substantial coordination and integration of specialized expertise within and outside of the team" (Cross, Ehrlich, Dawson, & Helderich, 2008, p. 75). As such, it is critical to understand how these new realities affect the way in which we design teams. Chapter 5 explores the fundamental design elements that express what it means to be a team. Authors John L. Cordery and Amy W. Tian review recent research and theory relating to team constitution, team structure, and external support as it informs the effective design of organizational teams.

Beyond the design of teams, it is important to compose teams appropriately. In Chapter 6, Mikhail A. Wolfson and John E. Mathieu summarize research and advancements in the vast team composition literature. After describing conventional team composition approaches and their shortcomings, the authors propose the incorporation of network theory and methods as a potential solution. In particular, meta-networks and multiplex ties may help model the complex nature of teams, exposing areas of need, revealing unique combinations of interpersonal ties, and, in combination, helping optimize individual knowledge, skills, and abilities. The authors thus contribute to the literature by clearly delineating a social network approach that can facilitate a better understanding of team composition.

An important piece of team diversity is found within composition. Research on team diversity has produced many promising, but also many inconsistent, findings. In Chapter 7, Bertolt Meyer organizes the literature on this regard into different streams, differentiated by the ways in which they resolve the bi-theoretic approaches to diversity: the information/decision-making paradigm, which predicts positive effects of team diversity, and the social

categorization paradigm, which predicts negative effects. Taken in summary, the conceptualizations suggest that practitioners who seek to reap the benefits of team diversity should increase team members' diversity beliefs and avoid the formation of homogeneous subgroups. Finally, new multilevel/contextual and status-based models of team diversity extend the theoretical foundations of diversity research beyond the bi-theoretical approach.

Membership change in organizations inevitably results in the introduction of newcomers, who typically represent a numerical minority in the teams that they join (Choi & Levine, 2004). Theories propose that newcomers, with their different background, are important sources of innovation that facilitate team performance and can thus enhance the long-term survival changes of teams. Chapter 8's review of over 50 years of research on this topic demonstrates that this potential is often not realized. Authors Floor Rink, Aimée A. Kane, Naomi Ellemers, and Gerben van der Veegt suggest that the three team receptivity components – team reflection, knowledge utilization, and newcomer acceptance – are interrelated and jointly influence sustained team performance. This framing sheds light on the variables that facilitate team receptivity to newcomers.

Inherent to the discussion on membership within organizations is that of individual role within a larger structure. Explaining the role that status plays in teams and organizations had been a main concern for scholars from the fields of social psychology, sociology, and management. Chapter 9 begins with a review of the definition of status and, more importantly, differentiates it from other related concepts (e.g., power and influence). Kun Luan, Qiong-Jing Hu and Xiao-Yun Xie then review the status effects on individual behaviors, team processes, and outcomes, as well as interteam interactions based on different theoretical perspectives. Insightful directions for future exploration that contribute to develop team status study are offered.

Section 2 closed with Chapter 10 by exploring the use of cross-cultural teams, a growing trend resulting from current globalization processes. Understanding and achieving cross-cultural team effectiveness are key to the success of many multinational companies. Accordingly, authors Ningyu Tang and Yumei Wang use the IPO framework to consider each of the components that have been studied, considering linkages between each of them. Inputs include cultural diversity, individual characteristics, team factors, and organizational factors, while processes involve action processes (e.g., coordination, learning), interpersonal processes (e.g., cooperation, communication, conflict), and psychological processes (e.g., psychological safety, negative affective state, team shared value). Outputs can be measured through performance (e.g., task performance, creativity performance) and affective reactions (e.g., wellbeing, satisfaction). The chapter then identifies several gaps and consequent directions for future research, in both theory and methods, using the input–process–output analysis, and concludes with the proposal of a more comprehensive multilevel cross-cultural team effectiveness model.

### Part III

The third section of the handbook takes a finer-grained look at dynamics within teams: core processes, emerging states, and mediators. Each of the authors describes, in detail, different psychological forces that both affect and stem from team interaction.

Section 3 starts with Chapter 11 by discussing teamwork processes and emergent states. Authors Rebecca Grossman, Sarit B. Friedman, and Suman Kalra use an adaptation of the traditional IPO model, the input–mediator–output–input (IMOI) framework, to frame the discussion, given the interconnected and cyclical nature of teamwork processes. In doing so, they are able to fully describe the affective, behavioral, and cognitive mechanisms that influence teamwork, including, respectively: cohesion, team confidence, and

team trust; transition processes, action processes, and interpersonal processes; and team mental models, transactive memory systems, and team learning. Following the synthesis of knowledge on team processes and emergent students, future directions for research are proposed, with particular emphasis on the rapid globalization of labor and teamwork.

A critical determinant of team processes is in decision making, which involves gathering, processing, and communicating information in support of arriving at task-relevant decisions. In order to fully understand this complex process, Tom W. Reader pulls from the social and applied psychology literature, to identify determinants of effective decision making, integrating them into key findings and illustrating them with key examples from history and practice. The author reviews research on the group processes that influence behavior in teams, teamwork and decision making, and relevant and appropriate interventions. Chapter 12 concludes with a four-point treatise on future areas of inquiry – that is, more interdisciplinary, systematic, naturalistic, and culturally competent research.

Decision making, as well as many other team processes, can be impacted significantly by stress. Chapter 13 focuses on the ever-changing and unpredictable real-world environments that challenge teamwork. Aaron S. Dietz, James E. Driskell, Mary Jane Sierra, Sallie J. Weaver, Tripp Driskell, and Eduardo Salas first present an overview of stress within the team context before examining its influence on team performance. Of special note is their parsimonious model framework, used to describe stress, its effects on teamwork, and moderators thereof. The authors then delve into the literature to identify team research in extreme environments and discuss issues in measurement of stress at the team level. Altogether, the chapter demonstrates thorough understanding of antecedents of the broad spectrum of stressors and their consequent influence on team processes.

Intragroup conflict is arguably one of the most important behavioral processes in teams. Research has consistently shown that while conflicts about personal tensions or underlying status concerns can harm team outcomes, debates over work-related matters can improve team outcomes. In Chapter 14, Lindred L. Greer and Jennifer E. Dannals review recent research aiming to understand the moderators and antecedents of team conflicts, with the hopes of understanding the conditions that give rise to productive team conflicts and minimize destructive team conflicts. Two key themes emerge from the literature. Firstly, teams which have evolved norms encouraging the expression of open, cooperative, non-emotional task debates are more likely to reap the benefits of conflict in teams. Secondly, status concerns are an insidious challenge to teams, and often may explain why more destructive conflict forms arise in teams, such as process conflicts. As research in this area moves forward, and more attention is paid to the development of such conflicts from individual motivations to group-level processes, the role of individual conflict behaviors, and the interrelation among the conflict types, we hope that researchers can reach consensus on the understanding and management of conflict in teams.

One critically important avenue which can shape conflict, as well as other key dynamics, within teams is through leadership. Chapter 15 lays groundwork for the argument that team leadership research needs to refocus and prioritize the development of team-specific leadership theory. Rather than applying generic leadership models to teams, author Daan van Knippenberg closely ties in integrative theories of team processes. This is no small feat, as the development of integrative process theory is likely the main challenge of the team research field as a whole. Due to the broad-ranging importance of such integrative process theory and the key implications for team performance, no subfield of team research will yield a greater return on investment than team leadership research.

Team cognition has been recognized as one of the most noteworthy developments in team research and accordingly, as Chapter 16 illustrates, this research has maintained an upward trajectory with no signs of waning. Within the team mental models and situation

awareness literatures, authors Susan Mohammed, Katherine Hamilton, Miriam Sánchez-Manzanares, and Ramón Rico identify several important future study needs that will continue to extend these research streams. However, across team mental models and situation awareness research, there are significant opportunities for intersection and integration that would not only enhance these respective literatures, but also advance the science of team cognition as a holistic entity. As such, the authors believe that some of the most exciting developments in the future will result from merging concepts from multiple team cognition literatures, identifying causal linkages between different forms of team knowledge, and testing how each differentially predicts various team processes and effectiveness indicators.

Team cognition is facilitated by trust, another crucial concept in teamwork, among members. Chapter 17 reviews a large body of literature and empirical findings relevant to team-level trust. Ana Cristina Costa and Neil Anderson show that there has been a concerted effort among researchers to uncover and quantify the substantial number of antecedents held to be related to team-level trust. In turn, relationships are shown with other, more distal outcomes such as team performance and team innovativeness. Developments in some areas of this body of knowledge have been considerable, now allowing a far more comprehensive and finer-grained understanding of relationships between individual, team, and organizational-level variables and team trust as a pertinent outcome. More specifically, the movement of research towards multilevel processes has been key in advancing our understanding of trust at work phenomena. Given the role that team trust plays in a host of outcomes at the individual, team, and organizational levels of analysis, this chapter sets out a holistic and timely narrative review of our understanding of team trust in workplace settings that will stimulate further research.

The psychological contract construct has enhanced the focus on the analysis of relations between employees and organizations in the last two decades. In Chapter 18, research into the psychological contract in work teams is reviewed. While this research is not particularly extensive, authors Carlos-María Alcover, Ramón Rico, William H. Turnley, and Mark C. Bolino endeavor to paint a broad canvas, including the multiple agency context and multiple foci social exchange relationships in the development and fulfillment of the psychological contract, which also considered the links between leader–member exchange theory, peer justice, social support in teams, and psychological contracts. The results of this review highlight a field in which research is still at an early stage and where promising lines of inquiry exist to capture the specific features of new forms of individual–organization relations existing in contemporary work contexts.

Given the rise of team-based structures in organizations, it is imperative to understand how and when collective emotional states may impact critical team functions, such as creativity. In Chapter 19, March L. To, Neal M. Ashkanasy, and Cynthia D. Fisher seek to make a key conceptual extension from individual to group creativity, noting that this entails an extra degree of complexity. They begin with a review of research findings on affect and its effects at the level of individual creativity, and follow up by describing the research that has extended individual phenomena to the group level, including discussion of the dynamic nature of creativity in groups. Finally, the authors identify the inadequacies of the conceptual extension in current group research and offer recommendations for future research. The aspects of group affect addressed in this chapter will hopefully enable scholarly efforts to develop a more integrative theory concerning the (complicated) effects of affect on creativity in contemporary workplace settings.

Part III ends with an important component of team cognition: reflexivity. In Chapter 20, Michaéla C. Schippers, Michael A. West, and Amy C. Edmondson emphasize that team reflexivity can help innovation and thus aid processes of teams that operate in a demanding, knowledge-intensive context. A proposed model of antecedents and consequences of

team reflexivity may help researchers and practitioners further explore and apply team reflexivity, which can be a powerful way of overcoming the group information-processing problems inherent in team-based knowledge work. Indeed, the human capacity to reflect is a valuable but often underutilized resource, enabling team productivity, innovation, and effectiveness. Unfortunately, because focused research is in its infancy, this chapter also serves as a call to study the conscious use of reflexivity in teams and other settings in which people are working to achieve shared goals. The arguments and model presented here will spur new research and new understanding of the mechanisms that underlie team reflexivity and its role in enhancing team innovation.

## Part IV

The fourth section explores methods of managing and assessing teams. The study of teamwork does not end once a team has formed and performed – just as essential to the team functioning are maintenance of psychological dynamics and measurement of output. Relatedly, extreme environments can critically influence the manner in which teams are organized and evaluated. In these and other cases, interventions may be required to assist in the optimal functioning of teams. The authors in this section discuss, in depth, the factors that can influence and capture teamwork during and after the performance period.

In order to properly manage teams, organizations must be able to accurately and comprehensively evaluate indices of teamwork. Chapter 21 provides an overview of fundamental concepts in the measurement of team performance. Authors Michael A. Rosen and Aaron S. Dietz describe factors that may influence assessment, including purpose, content, location, frequency and timing, and method. Special attention is paid to emerging strategies that are unobtrusive, integrative, and comprehensive, particularly in light of the dynamic and often physically distributed nature of teams today. Excitingly, as research understanding and methodological tools develop, the measurement of team performance becomes more advanced and robust.

Chapter 22 centers upon the development and management of team performance. Charles P. R. Scott and Jessica L. Wildman rigorously review the current literature to extract empirically sound findings on management of work teams. In order to do so methodically, they use the IMOI framework and dichotomous categorization (core processes and emergent states) to organize mediators of team development and management, beginning with outputs and working backwards towards antecedents. Their methodical review on the scientific literature and best practices makes sense of a confusing body of work, yielding interventional recommendations for practitioners and academic areas of interest for researchers.

Naturally, team management is taxed when it occurs in extreme environments. Chapter 23 focuses on these teams that are socially isolated from other teams and individuals, physically confined for long periods of time, and exposed to significant danger due to prevailing environmental factors (Palinkas, 2003). Examples of such contexts include polar bases and expeditions, spaceflight, and offshore oil rigs, wherein effectual teamwork is both critical and challenged. Authors William B. Vessey and Lauren B. Landon explore how these circumstances can influence team composition, cohesion, conflict, leadership, and communication, offering deep insight to nuances of each factor as well as countermeasures to buffer against ill effects. They conclude with emerging areas in the team research literature, including team effects, multiteam systems, and selection, composition, and interventions.

Relatedly, interventions are an incredibly useful tool for restructuring and directing teams. In Chapter 24, Deborah DiazGranados, Marissa L. Shuffler, Jesse A. Wingate, and Eduardo Salas offer a comprehensive explanation of the team lifecycle before focusing

specifically on team development. They describe processes and concepts key to the team intervention arenas of training, building, chartering, and coaching. Both the scientific literature and corporate practices indicate movement towards integration of interventional approaches, emphasis on both functional and dysfunctional aspects of teamwork, and incorporation of globalization and technology trends in development.

## Part V

The fifth section closes this title with Chapter 25 offering a perspective on the future of teamwork research. Michael A. West's chapter presents a novel, holistic perspective on teamwork. He extracts central principles of humanity – interconnectedness, belonging, and compassion – and expands upon them within the context of teams and the modern world. With philosophical clarity and scientific precision, he describes the teamwork literature, its projected directions, and the larger questions it can help answer.

## Conclusion

We have carefully curated this handbook to provide both breadth and depth in describing teamwork. Our authors demonstrate a broad range of subject matter expertise, expanding the field's understanding of teamwork by proposing novel models of understanding, relevant implications for practice, and compelling areas for future research. In order to emphasize the globalizing nature of teamwork, we have compiled knowledge from internationally minded contributors from diverse backgrounds. Finally, we firmly believe in the interrelatedness of research and practice as a driver in the science of teamwork, and have thus taken a scholar-practitioner approach throughout the handbook. We hope to provide our audience, at any stage in academia or industry, with thorough insight into the current state of teamwork practice.

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