CHAPTER 25

The Making of a Dream Team: When Expert Teams Do Best

Eduardo Salas, Michael A. Rosen, C. Shawn Burke, Gerald F. Goodwin, & Stephen M. Fiore

The Making of a Dream Team: When Expert Teams Do Best

The original use of the phrase "Dream Team" was in reference to the US basketball team that won the gold medal at the 1992 Olympics in Barcelona. Team members included basketball greats (e.g., Michael Jordan, Magic Johnson, and Larry Bird) as well as Charles Barkley and seven more NBA All-Stars. This team of twelve proficient athletes who were at the top of their game seamlessly blended their talents such that they dominated the Olympic competition, beating their eight opponents by an average of 44 points.

On February 22, 1980 at the Olympic Winter Games in Lake Placid a highly skilled Russian hockey team, recognized as the best hockey team in the world, lost 4–3 to a young but skilled collegiate US hockey team. The US victory over the "undefeatable" Russian team in the semi-finals, whom they had just lost to 10–3 a week before in an exhibition match, put the US team in contention for the gold medal. The US hockey team, which had been seeded seventh in the 12-team tournament, went on to beat Finland (4–2) for the gold medal.

So what distinguishes these two teams from other teams? Teamwork? Individual expertise? Both? What led the original "Dream Team" to dominate the 1992 Olympics? Conversely, what led the star Russian team to lose to a team they had dominated only a week before? The above examples illustrate that it takes more than a set of experts to make an expert team. Examples of teams composed of individuals highly skilled in their task roles that have failed as teams, sometimes with disastrous consequences are not limited to sports, but abound within organizations (e.g., Hackman, 1990), industry, aviation, and medicine as well as the military (e.g. Cannon-Bowers & Salas, 1998; Salas, Stagl, & Burke, 2004).

The lack of understanding that exists within organizations concerning the creation and management of expert teams poses a challenge since, in recent decades, the cognitive complexity and demanding nature of jobs has increased because of advances in technology. This has caused organizations to increasingly adopt team-based systems (Ilgen, 1994) in an effort to remain competitive and handle the cognitive demands placed on workers. In addition, the problem sets within organizations are often ambiguous, unstructured and ill defined, causing an increasing need for flexibility – adaptive expert teams. Because expert teams, in general, function in such dynamic, stressful, and complex environments, research that examines teams situated in their natural context has particular significance for understanding expert teams. Hence, this chapter focuses primarily on studies of teams in complex environments functioning in such areas as the military, business, aviation, and healthcare.

The focus of this chapter is on current scientific understanding of the performance of expert teams – what is it that these teams do, think, or feel that makes them expert. So, we present a brief review of the state-of-the-art in the study of performance of expert teams. We define an expert team as a set of interdependent team members, each of whom possesses unique and expert-level knowledge, skills, and experience related to task performance, and who adapt, coordinate, and cooperate as a team, thereby producing sustainable and repeatable team functioning at superior or at least near-optimal levels of performance. Expert teams are primarily characterized by high levels of team and task outcomes, achieved via the team's effective utilization of team member task-related expertise and the mastery of *team* processes. To that end, this chapter addresses three questions. First, what are the theories that are driving the research in the domain of expert teams? Second, what methods are being used to study expert teams? Third, given these things, what do we currently know about the performance of expert teams? We hope that in briefly addressing these three questions we get a glimpse at the making of a "dream team" – what are the cognitions, behaviors, and attitudes that we should strive for in high performing teams.

What Theories are Driving Expert Teams' Research?

There have been several advances in the study of teams within the past 25 years (see Guzzo & Dickson, 1996; Kozlowski & Bell, 2003; Salas et al., 2004); however, the literature often focuses on teams as a general topic and not expert teams specifically. By taking a multi-disciplinary approach and combining advancements within the team literature with that on individual expertise, we can begin to understand, create, and manage adaptive expert team performance in complex environments.

What has the literature told us so far? First, expert team members are able to combine their individual technical expertise and coordinate their actions to achieve a common goal in such a manner that performance seems fluid; the team as a whole creates a synergy greater than its parts (Salas et al., 2004). Second, expert teams need to possess routine expertise, that is, they need the ability to solve problems quickly and accurately and understand problems in terms of principles and concepts (Chi, Feltovich, & Glaser, 1981). Third, members must be able to flexibly apply existing knowledge structures such that when faced with a novel situation, members can make predictions about system functioning and invent new procedures based on these predictions (Hatano & Inagaki, 1986). Fourth, expert teams seem to hold shared mental models of the task, the situation, their teammates, and the equipment (Cannon-Bowers, Salas, & Converse, 1993; Orasanu & Salas, 1993), which promote implicit coordination. Finally, expert teams must possess adaptive expertise – the ability to invent new procedures based on knowledge and to make new predictions (Hatano & Inagaki, 1986). Smith, Ford, and Kozlowski (1997) further argue that the key to adaptive expertise is a deep conceptual understanding of the target domain such that declarative and procedural knowledge coalesce into strategic knowledge (i.e., why procedures are appropriate for certain conditions). Hatano and Inagaki (1986) argue that mindful processing and abstraction are critical to the formation of adaptive expertise.

Given these characteristics, advances in theory that serve as drivers to understanding expert teams can be broken down into five areas, those dealing with: (a) team effectiveness and teamwork, (b) team adaptability and decision making, (c) shared cognition, (d) team leadership, and (e) team affective states, such as collective efficacy and psychological safety. We briefly discuss these below.

TEAM EFFECTIVENESS AND TEAMWORK

Advances in understanding the components of team effectiveness serve to inform our knowledge about the creation of adaptive team expertise. Models and theories depict the relationship between input variables (e.g., team characteristics, individual characteristics), process variables (e.g., communication, coordination, decision making, back-up behavior, compatible cognitive structures, compensatory behavior, and leadership), and outcome variables (e.g., increased productivity, increased safety, increased job satisfaction) (e.g., Hackman, 1983; Gersick, 1988; Salas, Dickinson, Converse, & Tannenbaum, 1992; Marks, Mathieu, & Zaccaro, 2001; Salas, Stagl, Burke, & Goodwin, in press). In doing so, these input-process-output models illustrate the dynamic and multidimensional nature of teamwork and the importance of process variables in achieving team effectiveness (Guzzo & Dickson, 1996; Salas et al., in press).

Theoretical and empirical work has also further delineated what teams "think, do, and feel" (Salas & Cannon-Bowers, 2001). Team members must dynamically display critical knowledge (cognitions), skills (behaviors), and attitudes (feelings) while performing in complex environments. Teams are dynamic entities and evolve over time, during which they must master two tracks of skills: taskwork and teamwork (Gersick, 1988; Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986; Kozlowski, Gully, & Salas, 1996). Taskwork skills are those skills that members must understand and acquire for actual task performance, whereas teamwork skills are the behavioral and attitudinal responses that members need to function effectively as part of an interdependent team (Morgan et al., 1986). The implication for the creation of expert teams is that it is not sufficient that members be technical experts – they must also be experts in the social interactions that lead to adaptive coordinated action (i.e., teamwork) within the context of the technical expertise.

TEAM ADAPTATION AND DECISION MAKING

As noted one hallmark of expert teams is their ability to be adaptive and make timely decisions not only under stable, low-tempo, and information-rich conditions, but also in situations where information is dynamic and ambiguous, and decisions must be made quickly. Therefore, the literature on decision making provides a second theoretical foundation for the creation of expert teams (see Salas & Klein, 2001). Decision making has been defined as, "the ability to gather and integrate information, use sound judgment, identify alternatives, select the best solution, and evaluate the consequences" (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995, p. 346). Moreover, within a team context decision making emphasizes skill in pooling information and resources in support of a response choice (Cannon-Bowers et al., 1995). Researchers have recently shown that the rational classical decision-making model (Bernoulli, 1738) does not reflect how decisions are actually made by experts in context (see Klein, 1993; Cannon-Bowers & Salas, 1998; Klein, 1996; Lipshitz, Klein, Orasanu, & Salas, 2001; Salas & Klein, 2001). Within operational environments where time is a premium, experts often trade decision accuracy for speed of decision because of the resource intensiveness of rational decision-making processes.

Experts operating in time-pressured situations typically look for patterns of situational cues. If, based on this pattern seeking,

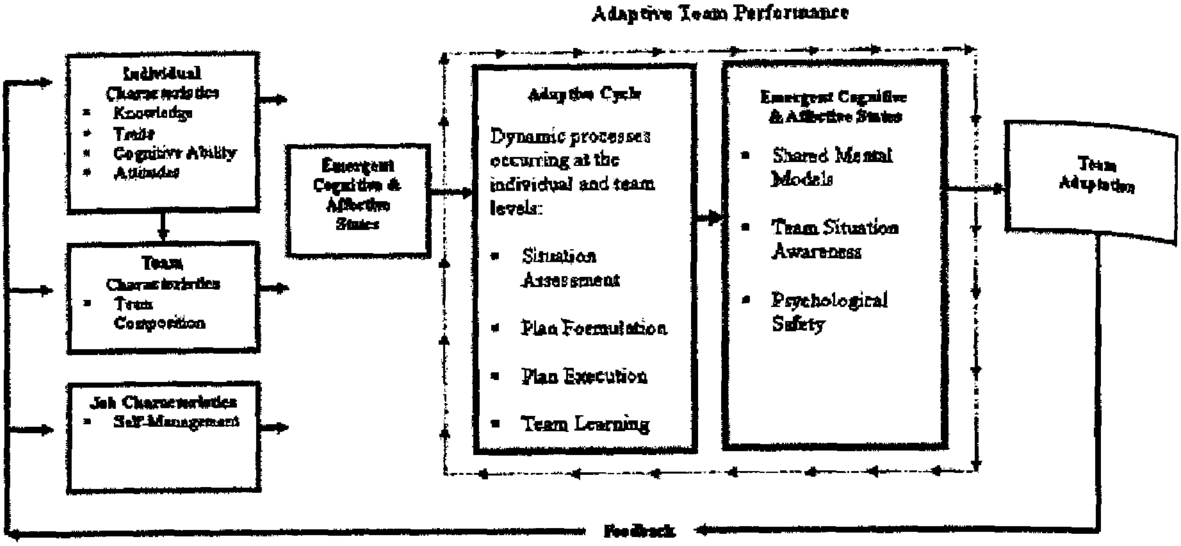

Figure 25.1. Team Adaptation Framework illustrating the relationship between input variables, emergent states, and the multiple phases of the team adaptation cycle (adapted from Stagl, Burke, Salas, & Pierce, 2006.)

the situation is perceived as being similar to one that the decision maker has encountered in the past, a similar decision is made (Klein, 1997). It has been argued that this type of decision making, recognition-primed decision-making (see Ross et al., Chapter 23), does not require a great deal of time or cognitive effort to accomplish, and may even reduce the vulnerability to stressors such as time pressure (Klein, 1997).

Adopting a multidisciplinary, multiphasic, multilevel perspective, Burke et al. (in press) recently advanced a theory of team adaptation. Figure 25.1 presents a framework of their theory. This framework does not represent a causal or testable model of adaptation, but is intended as a conceptual description of team adaptation. Burke et al. utilized an input-throughput-output model to describe a series of phases that unfold over time to emerge as adaptive team performance. Phase 1 is situation assessment, characterized by cue recognition and ascription of meaning to environmental patterns. Phase 2 is plan formulation, wherein the team pools cognitive resources and decides on a course of action. Phase 3 is plan execution, which relies heavily on the coordination mechanisms described later in this chapter. Team learning, phase 4, is the result of an assessment of the team's performance and alters how the team will execute the earlier phases on the next pass through this adaptive cycle. As these phases unfold, the meaning, plans, and actions that ensue serve to update emergent affective (e.g., cohesion, viability) and cognitive states (e.g., shared mental models, shared situation awareness, psychological safety). In turn this reservoir of affect and cognition are drawn on by team members as they engage in the next phase of performance and in navigating future challenges. Thus, adaptive team performance is a recursive process that consists of several phases that reoccur across time (see Figure 25.1). This work is complemented by models of team regulation, in that they emphasize a team's incremental adjustment to situational change. DeShon et al. (2004) propose a multiple goal, multilevel model of individual and team regulation in which individual and team goals maintain separate feedback loops. The team's allocation of cognitive and behavioral resources will be influenced by discrepancies in the situation and team and individual goals. This gives rise to separate mirror regulatory mechanisms on the individual and team level that account for team learning, adaptation, and performance.

A challenge in decision making within team environments occurs when team members begin to experience stress and can't easily diagnose the situation because of the performance-degrading effects of stress. Normally higher-status members are less likely to take the advice of lower-status members. However, under stress three things happen. First, higher-status members are more willing to accept input from those with less expertise, but under these conditions low-status members generally aren't vocal in their viewpoints (Driskell & Salas, 1991). Second, attention tends to narrow, producing a form of tunnel vision (Salas, Cannon-Bowers, & Blickensderfer, 1993). Third, explicit communication decreases as members become more focused on their own respective roles (Kleinman & Serfaty, 1989). Despite these challenges expert teams are adaptive and able to maintain coordination levels and corresponding effective decisions despite these conditions; they have behavioral and cognitive mechanisms in place that allow them to maintain high levels of performance.

SHARED COGNITION

Shared cognition has been used to refer to a number of related constructs (e.g., shared mental models, team situation awareness, common ground, team metacognition, transactive memory; Kelly, Badum, Salas, & Burke, 2005). Shared cognition has been increasingly used as an explanation for how the members of expert teams are able to interact with one another and adapt communication and coordination patterns while under stress (e.g., Campbell & Kuncel, 2001; Cannon-Bowers, Salas, & Converse, 1993; Cooke, Salas, Cannon-Bowers, & Stout, 2000; Ensley & Pearce, 2001; Entin & Serfaty, 1999; Hinsz, Tindale, & Vollrath, 1997; Klimoski & Mohammad, 1994; Orasanu, 1990). Shared cognition (in its various designations) has been argued to be the mechanism that allows teams to: (a) coordinate their action without explicit communication (Entin & Serfaty, 1999), (b) interpret cues in a similar manner, make compatible decisions, and take coherent or convergent actions (e.g., Klimoski & Mohammad, 1994; Cooke et al., 2000; Mohammed & Dumville, 2001), and (c) make accurate predictions not only about the world in which the team is operating but about the team functioning that enables coordination (Rouse & Morris, 1986). Shared cognition, in the form of compatible mental models, as well as mutual performance monitoring are necessary precursors to effective team processes, such as back-up behavior, because they form the foundation for decisions of when a team member must step in to provide back up, who should step in, and what assistance is needed.

TEAM LEADERSHIP

The impact of leaders on individual, team, and organizational effectiveness is substantial (Zaccaro, Rittman, & Marks, 2001). Researchers have increasingly taken a functional perspective when examining team leadership (Fleishman, Mumford, Zaccaro, Levin, Korotkin, & Hein, 1991; Hackman, 2002; Zaccaro et al., 2001). From this perspective, leadership involves "social problem solving that promotes coordinated, adaptive team performance by facilitating goal definition and attainment" (Salas, Burke, & Stagl, 2004, p. 343) and is composed of four classes of leader responses to social problems: information search and structuring, information use in problem solving, managing personnel resources, and managing material resources (Salas et al., 2004). Although theoretical work in this area is continuing and a large leadership literature exists, research into the *functional* role of team leaders remains a glaring weakness (e.g. Salas et al., 2004). As the complexity of the social problems faced by leaders and teams increases, so does the need for adaptation. Research into shared leadership holds promise as a source for informing our understanding of the processes by which team leadership can contribute to expert team performance.

Shared leadership is "the transference of the leadership function among team members in order to take advantage of member strengths (e.g., knowledge, skills, attitudes, perspectives, contacts, and time available) as dictated by either environmental demands or the development stage of the team" (Burke, Fiore, & Salas, 2004, p. 105). Pearce and Sims (2002) have shown that shared leadership can be more effective than traditional vertical leadership (i.e., a rigid hierarchical authority structure). When leadership is shared, the team can adapt to situational demands by shifting leadership functions (the four broad categories of which are listed above), thereby more effectively moving toward the team goals. However, shared leadership does not presuppose the absence of a formal hierarchical leader. A formal leader can sometimes most effectively lead by setting the climate and team structure to facilitate the occurrence of shared leadership. The success of this shared leadership model depends on the fluidity with which leadership can be transferred – a type of coordination itself.

TEAM AFFECTIVE STATES: COLLECTIVE EFFICACY AND PSYCHOLOGICAL SAFETY

In addition to the cognitive and performance aspects of teams discussed in the previous sections, recent research has highlighted the importance of a team's attitudes, perceptions, and beliefs and the roles that these factors play in team processes and outcomes. Self-efficacy has long been known to be related to motivation and performance at the individual level (Bandura, 1977). Translated to the group level, it describes the team's belief in the team's competence to handle specific environmental demands (Bandura, 1986). Zaccaro et al. (1995) define collective efficacy as "a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands" (p. 309).

In addition to collective efficacy, team psychological safety has been identified as conducive to success when team learning is essential. Edmondson (1999) defined team psychological safety as "a shared belief that the team is safe for interpersonal risk taking" (p. 354). She argues that this construct comprises trust, but exceeds this to include a team environment where individual members feel at ease being themselves. Using teams within a manufacturing company, Edmondson (1999) showed that high levels of psychological safety led teams to view failure as a learning opportunity and to seek feedback from outside sources. Alternately, low levels of psychological safety led to an unquestioning acceptance of team goals for fear of reprisal from managers as well as a disinclination to seek help. Therefore, the author argued that a team's engagement in learning behavior is strongly tied to the team's level of psychological safety.

Thus far we have outlined the theoretical drivers central to understanding adaptive expert team performance. Research into team effectiveness and teamwork, team adaptability and decision making, shared cognition, team leadership, and collective efficacy and psychological safety serves to inform us of the processes by which individual and team competencies amalgamate into adaptive expert team performance. The following section will review the methods employed by researchers to examine expert teams.

What Methods are Being Used to Study Expert Teams?

In order to exhibit expert performance, an expert team must be engaged in tasks within their domain of expertise. Therefore, observational field studies are the dominant research tool used to study expert teams, although methodologies incorporating complex simulations and self-report survey methods are used as well. In the following sections, we briefly review these three methodological categories and present exemplar studies from the expert teams research.

OBSERVATIONS IN THE FIELD

Field observation studies are the mainstay of expert teams research. A sampling of the methods used to research expert teams include: retrospective analysis of critical incidents (e.g. Carroll, Rudolph, Hatakenaka, Widerhold, & Boldrini, 2001), interviews (e.g. Kline, 2005), and field observations (e.g. Edmondson, Bohmer, &

Pisano, 2001), including video recording task performance (e.g. Omodei, Wearing, & McLennon, 1997; McLennan, Pavlou, & Omodei, 2005). Observational studies are necessary to access information about how teams operate in their environments; however, observational studies lack the control imposed by experimental and quasi-experimental studies. See Lipshitz (2005) for a review of the issues of rigor in observational studies.

Patel and Arocha (2001) used observational methods to study a medical and a surgical intensive care unit (MICU, SICU, respectively). Specifically, they examined how the task and environmental constraints of the two units affected decision making. The primary source of data in the study was audiotapes of the morning rounds. The verbatim transcripts of the audiotapes were divided into episodes based on the discussion topic; then each episode was divided into a segment, or a particular aspect of care (e.g., lab tests, patient state) relevant to the episode; segments were further divided into propositions, or idea units. The coded transcripts were then categorized into decision types: findings (i.e., decision regarding patient-specific information), actions (i.e., decision regarding future procedures), and assessments (i.e., evaluation of tradeoffs between different treatments). Analysis of the data revealed that the MICU and SICU had markedly different communication patterns. The authors hypothesized that this was due to differing goals of the tasks performed in the two units. Similarly, by analyzing the transcripts coded for type of decision making (i.e., forward- or backward-driven inference), the research showed that there were differences between the units such that the MICU engaged in more deliberative decision making. This too was attributed to the differing environmental and task constraints in the two units.

SIMULATION

Simulation is an instrumental method for studying expert teams (Woods, 1993) in that it allows for experimental manipulation of environmental cues and presents an opportunity for collecting a wider variety of quantitative and qualitative data than is normally feasible in real-world field observation (Pliske & Klein, 2003). To be valid, the simulation must reach a level of functional quality that requires real-world expert teams to use their expertise, regardless of the level of fidelity (Lipshitz et al., 2001; Pliske & Klein, 2003). That is, in order to generalize findings of simulation research back to expert teams in a specific domain, the simulation must be engaging in such a way that it is relevant to members of expert teams from that domain.

Orasanu and Fischer's (1997) study of flight-crew decision-making performance is an example of the type of insights that can be gained into expert teams using simulation methods. Their methodology involved using a high-fidelity flight simulator to observe real-world flight teams handling problematic and routine in-flight situations. The scenario simulated several mechanical and weather conditions that required the crew to perform several critical tasks: (a) deciding whether to continue with a landing approach under risky conditions or perform a missed landing approach, (b) selecting an alternate airport to land at, and (c) coordinating extra functions during landing due to mechanical failures. By videotaping the sessions, the researchers had a record of expert team performance in action during critical situations. They did not have to rely on retrospective reports of what occurred and were therefore not reliant on the memories of team members. The authors used ethnographic and cognitive engineering techniques to analyze the data and to derive a set of decision strategies associated with more- and less-effective team performance. This work is representative of a growing body of research into expert teams using simulations (e.g. Roth, Woods, & Pople, 1992; Cohen, Freeman, & Thompson, 1998; Woods, 1993; Kanki, Lozito, & Foushee, 1989; Pascual & Henderson, 1997; Brun, Eid, Johnsen, Laberg, Ekornas, & Kobbeltvedt, 2005; McLennan, Pavlou, & Omodei, 2005; Smith-Jensch et al., 1998; Stokes, Kemper, & Kite, 1997).

SELF-REPORT

Studies employing a self-report methodology are common for investigating expert teams because they allow relatively quick access to information from large numbers of teams within a single domain (e.g. Jung & Sosik, 2002; Chidester, Helmreich, Gregorich, & Geiss, 1991). For example, Cannon and Edmondson (2001) used a method that combined self-report and interviews to investigate shared beliefs about failure in organizational work groups. They hypothesized that shared beliefs about failure can increase or decrease the severity of barriers to a team's productive self-examination of error and failure. Self-report surveys were used to assess three types of variables: antecedent (i.e., context support, clear direction, task motivation, and leadership coaching), behavior (i.e., beliefs about failure), and outcomes (i.e., work-group performance). These authors sampled 51 work groups within the same organization and using regression analysis showed that: (a) the antecedent variables of coaching and direction were significantly predictive of shared beliefs of failure, and (b) shared beliefs about failure within a team were significantly predictive of team performance.

Research employing these methods has produced a wealth of information about expert team performance. The remainder of the chapter is dedicated to distilling this growing literature into high-level characterizations of what is currently known about adaptive expert team performance.

When Do Expert Teams Do Best?

What has been learned about expert team performance in the last 20 years? A substantial amount of research has been conducted and much progress has been made, though the compartmentalized nature of the research can work to obfuscate an integrated view of the findings. What we do next is attempt to remedy this situation by extracting from the literature snapshots of teams when they function optimally – the characteristics of expert teams. We focus primarily on expert teams, but seek support from additional research where appropriate. Table 25.1 summarizes what we know (so far) about what expert teams do best. We briefly discuss these characteristics below.

Expert Teams Hold Shared Mental Models

Expert teams are composed of members who anticipate each other's needs. They are able to coordinate their action without necessarily or always engaging in overt communication because they share an experience of both explicit and subtle or tacit communication, arising from a shared knowledge of task structure and team processes. Orasanu (1990) has shown through observational studies that shared mental models distinguish effective and ineffective cockpit crews in that high-performing crews were able to communicate in a manner that allowed them to build a shared mental model of the situation (see also Cooke, Salas, Kiekel, & Bell, 2004; Ensley & Pearce, 2001; Moreland, 1999).

Expert Teams Optimize Resources by Learning and Adapting

Expert teams self-correct, compensate for each other, and reallocate functions as necessary. Edmondson et al. (2001) reported that surgical teams that successfully implemented new technology solutions were able to do so by means of effectively supporting the collective learning process (see also Kayes, 2004; Bunderson & Sutcliffe, 2003; Wong, 2004). The collective learning process was key in the team's development of new routines to guide use of the technology.

Expert Teams Engage in a Cycle or Discipline of Prebrief → Performance → Debrief

Expert team members provide feedback to each other. Expert teams are able to differentiate between higher and lower priorities and establish and revise team goals and plans accordingly. While working toward their goals, expert teams employ mechanisms

Table 25.1. Expert team performance effective processes and outcomes

Expert Teams . . .
Hold shared mental models
They have members who anticipate each other.
They can communicate without the need to communicate overtly.
Optimize resources by learning and adapting
They are self correcting.
They compensate for each other.
They reallocate functions.
Have clear roles and responsibilities
They mange expectations.
They have members who understand each others' roles and how they fit together.
They ensure team member roles are clear but not overly rigid.
Have a clear, valued, and shared vision
They have a clear and common purpose.
Engage in a cycle or discipline of prebrief → performance → debrief
They regularly provide feedback to each other, both individually and as a team.
They establish and revise ream goals and plans.
They differentiate between higher and lower priorities.
They have mechanisms for anticipating and reviewing issues/problems of members.
The periodically diagnose team "effectiveness," including its results, its processes, and its vitality (morale, retention, energy).
Have strong team leadership
They are led by someone with good leadership skills and not just technical competence.
They have team members who believe the leaders care about them.
They provide situation updates.
They foster teamwork, coordination, and cooperation.
They self-correct first.
Develop a strong sense of "collective," trust, teamness, and confidence
They manage conflict well; team members confront each other effectively.
They have a strong sense of team orientation.
They trust other team members' "intentions."
They strongly believe in the team's collective ability to succeed.
They develop collective efficacy.
Manage and optimize performance outcomes
They make fewer errors.
They communicate often "enough"; they ensure that fellow team members have the information they need to be able to contribute.
They make better decisions.
They have a greater chance of mission success.
Cooperate and coordinate
They identify teamwork and task work requirements.
They ensure that, through staffing and/or development, the team possesses the right mix of competencies.
They consciously integrate new team members.
They distribute and assign work thoughtfully.
They examine and adjust the team's physical workplace to optimize communication and coordination.

for anticipating and reviewing the issues and problems of the members. Similarly, expert teams deliberately self-diagnose elements of team effectiveness such as the team's results, its processes, and vitality issues such as morale, retention, and energy. Smith-Jentsch, Zeising, Acton, and McPherson (1998) showed through a case study that a US Navy combat information center (CIC) team realized high levels of performance by employing team self-correction and a cycle of prebrief, perform/observe, diagnose performance and debrief. The CIC team was able to identify teamwork-related problems, show immediate improvement on targeted goals, and generalize lessons learned, which resulted in sustained high levels of performance.

Expert Teams Have Clear Roles and Responsibilities

Expert teams are composed of individuals who manage their expectations by understanding each other's roles and how they work together to accomplish the team goals. Expert teams have clarity of team member roles, but not to the point of excess or rigidity in role definition. LaPorte and Consolini (1991) report on how air-traffic controllers are able to self-organize shifts in roles and responsibilities among themselves to meet the evolving workload conditions experienced throughout the day (see also Beauchamp, Bray, Eys, & Carron, 2002; Brun et al., 2005; Bliese & Castro, 2000).

Expert Teams Have a Clear, Valued, and Shared Vision

Expert teams have a clear and common purpose. Castka, Bamer, Sharp and Belohoubek (2001) argue that the success of high-performance teams is tied, in part, to the team members' thorough comprehension of the mission definition, vision, and goals (see also Pearce & Ensley, 2004; Campion, Medsker, & Higgs, 1993). In their ethnographic study, Castka et al. linked the effectiveness of a management team within a British manufacturing company to the clarity and focus of team goals.

Expert Teams Have Strong Team Leadership

Leaders of expert teams are not just technically competent; they possess quality leadership skills. In expert teams, team members believe that the leaders care about them. Leaders of expert teams provide situation updates, foster teamwork, coordination, and cooperation, and self-correct first (see Salas et al., 2004; Day, Gronn, & Salas, 2004; Pirola-Merlo, Hartel, Mann, & Hirst, 2002). Chidester, Helmreich, Gregorich, and Geis (1991) showed that cockpit crews led by pilots who were highly motivated and task oriented performed better when confronted with abnormal situations during a flight than did crews led by pilots with low motivation and task orientation.

Expert Teams Develop a Strong Sense of "Collective," Trust, Teamness, and Confidence

Members of expert teams are able to manage conflict appropriately by confronting each other effectively. Expert team members have a strong sense of team orientation and trust in the intentions of their fellow team members (see Salas et al., 2004; Edmondson et al., 2001; Edmondson, 1999; Cannon & Edmondson, 2001). They are confident in the team's ability to succeed and develop collective efficacy. Edmondson (2003) found that team leaders that created a sense of trust and minimized power differences were able to realize higher levels of adaptive performance in interdisciplinary medical action teams.

Expert Teams Manage and Optimize Performance Outcomes

Expert teams make better decisions and commit fewer errors. They are able to balance their communication so that team members have the appropriate and timely information they need to contribute to the team, thus creating a higher probability of mission success (Orasanu, 1990). Patel and Arocha (2001) showed how MICU and SICU teams manage information collection and flow in order to maximize decision-making performance relative to the specifics of the team task and the team goal.

Expert Teams Create Mechanisms for Cooperation and Coordination

Expert teams are able to identify all of the relevant teamwork and taskwork requirements and ensure that, through selection and training, the team is composed of individuals possessing the competencies necessary to successfully meet the team and taskwork requirements. Expert teams employ a deliberate method for integrating new team members so as to ameliorate the impact of membership change on performance. Similarly, work within expert teams is allocated in a thoughtful manner, balancing task characteristics with individual expertise as well as overall workload. Expert teams are also responsive to the impact of the physical environment in which the team operates and are cognizant of the effects that this physical space has on performance. That is, they deliberately try to alter their operating environment to optimize communication and coordination. Schaafstal, Johnston, and Oser (2001) identified coordination and cooperation as hallmarks of expert emergency-management (EM) teams. In the normal course of action, EM teams face decision-making situations fraught with informational uncertainty and stress; they also operate in a large multiteam system, interacting with EM teams from other organizations. This scenario demands highly refined coordination and communication skills, both within any one EM team, and between the EM teams comprising the larger multiteam system.

Concluding Remarks

A great deal has been learned about what expert teams do, think, and feel. Modern research has begun to show us what effective teams do when confronting complex, stressful, and difficult tasks. Clearly, effective teams perform fluidly and repeatedly and manage to coordinate team-level actions, events, procedures, and communication protocols. Given the importance of teams in many current realms of human activity, research on team performance, team cognition, and expert teams will continue to reveal the mechanisms that support the achievement and maintenance of expert team performance, and based on a richer scientific understanding of those mechanisms, we can come to know how to compose, train, and manage more "dream teams."

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