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Debriefs: Teams Learning From Doing in Context

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Abstract

Debriefs are a type of work meeting in which teams discuss, interpret, and learn from recent events during which they collaborated. In a variety of forms, debriefs are found across a wide range of organizational types and settings. Well conducted debriefs can improve team effectiveness by 25% across a variety of organizations and settings. For example, the U.S. military adopted debriefs decades ago to promote learning and performance across the various services. Subsequently, debriefs have been introduced in the medical field, the fire service, aviation, education, and in a variety of organizational training and simulation environments. After a discussion of various purposes for which debriefs have been used, we proceed with an historical review of development of the concepts and use in industries/contexts. We then review the psychological factors relevant to debrief effectiveness and the outcomes for individuals, teams, and organizations that deploy debriefs. Future directions of particular interest to team researchers across a variety of psychological disciplines are presented along with a review of how best to implement debriefs from a practical perspective.

Keywords: Debriefs, After-Action Reviews, Huddles, Team Learning, Sensemaking

Debriefs: Teams Learning from Doing in Context

Sometimes called critiques, after-action reviews, after-event reviews, huddles, hot-washes, and post mortems, debriefs are a type of work meeting in which teams discuss, interpret, and learn from recent events during which they collaborated (Salas, Klein, King, Salisbury, Augenstein, Birnbach, Robinson, & Upshaw 2008; Allen, Baran, & Scott, 2010; Reiter-Palmon, Kennel, Allen, Jones, & Skinner, 2015; Scott, Dunn, Williams & Allen, 2015). According to a recent meta-analysis, teams who engage in debriefs outperform teams that do not (Tannenbaum & Cerasoli, 2013). In fact, well conducted debriefs can improve team effectiveness by 25% across a variety of organizations and settings (Tannenbaum & Cerasoli, 2013). In particular, debriefs have been suggested as an important mechanism by which individuals and teams use post-incident communication to learn and improve performance.

Perhaps most interesting is the fact that debriefs in a variety of forms are found across a wide range of organizational types and settings. For example, the U.S. military adopted debriefs decades ago to promote learning and performance among a variety of teams across the services (Morrison & Meliza, 1999). More recently, debriefs under various names are found in the medical field (Reiter-Palmon et al., 2015), the fire service (Crowe, Allen, Scott, Harms, & Yoerger, 2017), aviation (Smith & Dismukes, 2000), aerospace (Rogers & Milan, 2004), education (Ellis, Granzach, Castle, & Sekely, 2010), and in a variety of organizational training and simulation environments (Rosen, Salas, Tannenbaum, Pronovost, & King, 2012). In all these settings, debriefs are implemented ideally in accordance with the needs of the teams who use them and in association with variations in purpose, scope, formality, structure, and so forth.

After a discussion of various definitions of and purposes for which debriefs have been used, we proceed with an historical review of development of the concepts and their use in

various industries and contexts. We then review the factors relevant to debrief effectiveness, the inputs to effective debriefs, and the outcomes for individuals, teams, and organizations that deploy debriefs. Finally, we will identify future research directions of particular interest to team researchers across a variety of psychological disciplines as well as future practice directions for individuals engaging in debriefing activities in their organizations.

Definitions and Purposes of Debriefs in Organizations

Due to the broad application and varied uses of debriefing activities, definition ambiguity persists. Table 1 provides a few of the different names given to debriefings, their definitions, and some example citations where these definitions are found. Although differences exist across the domains and the enactment of debriefs, the differences are not consistent within a domain and therefore we focus on differences that appear across domains. Thus, taking an inclusive approach, we define debriefs and similar activities as a type of work meeting in which people discuss, interpret and endeavor to learn from a recent event during which they collaborated (Scott, Allen, Bonilla, Baran, & Murphy, 2013). Although many different organizations may benefit from debriefs, recent scholarly work largely comes from high reliability organizations (HROs) (e.g., military organizations, first responders, hospitals, aviation, etc.) in which collaborators must monitor and respond efficiently to risky, turbulent environments in which errors are costly and/or fatal (Weick, Sutcliffe & Obstfeld, 2005). Debriefs are among the interventions that HRO's scholars increasingly deploy to enhance a group or team's ability to maintain relatively error free operations (Dunn, Scott, Allen & Bonilla, 2016).

Insert Table 1 about here

The structure and formality of debriefs tend to vary across contexts and between organizations within the same context. Specifically, some forms of debriefing are formal with structured questions, reporting, and function while others are less formal with limited or no structure in terms of key questions, no reporting, and so forth. For example, in healthcare, one form of debrief, a "post-fall huddle" (Reiter-Palmon et al., 2015) is more formal compared to another form of debrief, an "after-action review" that occurs in the fire service (Allen et al., 2010). The post-fall huddle uses a formal reporting document that includes a series of key questions targeted toward identifying the root cause of a patient fall in a hospital care setting. Attendees are identified, answers to the questions are recorded, and key information concerning the circumstances of the fall are recorded and shared with others in the organization to promote additional organizational learning. In contrast, although fire departments often hold formal debriefs after major incidents, especially those involving significant loss of life or property, crews of firefighters are increasingly encouraged to hold informal after-action reviews that occur after each and every call they go on, be they a house fire, a car wreck, or a medical emergency in a person's home (Crowe et al., 2017). Due to the great variety in the nature of the calls responded to in the fire service, formality in reporting and documentation would be considerably more challenging. In addition, it is important to differentiate these informal debriefs from the more formal ones. Thus, from a practical standpoint and from an implementation standpoint, after-action reviews in the fire service appear much less formal than post-fall huddles in the hospital setting.

As the definitions suggest, organizations and groups use debriefs for different purposes. These purposes include, but are not limited to, information sharing, performance management, problem-solving, decision making, enhancing group identity, experiential learning, minimizing

accidents, identifying hazards, taking corrective action, establishing psychological safety, and so forth (see Table 2). Because of their usefulness at promoting desirable outcomes for individuals, teams, and organizations, it comes as no surprise that the implementation of debriefs occurred in a variety of contexts. The various contexts require variations in the implementation of debriefs as well as commonalities in the retrospective learning that can occur. Table 2 provides a summary of the different contextual purposes for debriefing activities.

Insert Table 2 about here

An Historical Review of Debriefs in Context

The history and development of debriefing activity developed in the military and then propagated across contexts. Thus, given the differences in adoption and implementation mentioned and the variety of purposes, a brief historical review of debriefs by context is appropriate. After reviewing the military context, the ordering is somewhat arbitrary as the development and implementation of debriefing in the other contexts occurred somewhat concurrently.

Debriefs in the Military

Debriefs in the military began, officially, around 1975 with the implementation of after-action reviews by the Army Research Institute (Morrison et al., 1999). Prior to their official implementation, S. L. A. Marshall introduced interviews after combat during World War II. The intent at this time was to develop an oral history of the combat efforts and improve processes and war efforts moving forward. Then, in the early 1970s the “performance critique” was used after tactical exercises to provide feedback to soldiers, combat teams, and so forth. Today, debriefs across the armed services are referred to as after-action reviews or AARs, almost exclusively.

They are used for a variety of situations and purposes and range in size from simple patrol debriefs at the roadside in Iraq to large-scale reviews after an exercise (Darling & Parry, 2001).

Although each branch of the service may take a slightly different approach, the US Army's Center for Army Lessons Learned (CALL), in conjunction with ARI, provide a useful example of what debriefs look like in this context (Morrison et al., 1999; Darling & Parry, 2001). At the army's Combat Training Center, debriefs are run according to the following pattern:

1. Reviews what the unit intended to accomplish, including the overall mission and commander's intent.
2. Establishes the group understood truth of what actually happened (e.g., review moment-by-moment events on the battlefield).
3. Explores the causes of the results, good or bad, and may focus on one or a few key issues.
4. Provides time for the unit to reflect on what it should learn from the review and how to sustain effective future operations.
5. Concludes with a prospective look at the next day's mission and what issues may arise

Using this pattern, military personnel implement after-action reviews across a variety of military platforms and contexts (e.g. combat units on the ground, crews on warships, aviators after each flight/mission, etc.). For example, Smith-Jentsch and colleages (1998) developed a process called Team Dimensional Training (TDT), which refers to a method for enhancing team performance by improving team processes. Specifically, the goal of TDT is to improve four dimensions needed for successful teams including information exchange, communication delivery, supporting behavior, and leadership. Improvement in these dimensions is achieved through a self-correction process where a team leader structures a prebrief, observation of performance, and debrief (Smith-Jentsch et al., 1998). Focusing on the debrief portion, teams

develop mental models leading to increased performance and this type of guided conversation has been shown to improve performance both in laboratory settings as well as on board Navy vessels (Smith-Jentsch et al., 1998).

Debriefs in Healthcare

Medical errors have resulted in reduced patient safety, increased length of hospital stays, patient death, and have a large economic impact (Andel, Davidow, Hollander, & Moreno, 2012). To address this issue, healthcare professionals have looked to the military and aviation industry, specifically the use of Crew Resource Management (CRM), as a way to reduce medical errors (Gordon, Mendenhall, & O'Connor, 2012). An important aspect of CRM that has been adapted for use by healthcare professionals is that of the debrief.

The purpose of debriefs in healthcare, as is the always the case, is learning from previous experiences. In healthcare, the main focus of the learning is to improve patient safety. As a result, debriefs in healthcare have occurred primarily in two different contexts. The first is formal education of medical students, nurses and other medical personnel. These debriefs may occur as part of the medical school education process, training in interprofessional teams, and as part of exercises and simulations (Salas et al., 2008; Tannenbaum & Goldhaber-Fiebert, 2012). In addition, debriefs have been used in non-educational clinical settings, typically within a hospital (Cho, 2015). Debriefs can be conducted in other healthcare settings, outside of hospitals, however, most empirical work regarding debriefs in actual work settings, as opposed to education, focuses on hospitals. Although the goal of learning is central to both of these health care contexts, the differences between the contexts also may result in differences in emphasis. Debriefs conducted in educational settings and in simulations focus mainly on learning as the primary goal and with those conducted on the job focusing on patient safety via learning from

past events (Cho, 2015). Debriefs in healthcare may occasionally serve an additional purpose, such as a way to cope with emotionally difficult events (Cronin & Andrews, 2009). These critical incident stress debriefings have been suggested as an effective and important tool particularly for those in training (i.e., medical school, Branch, 2005).

Debriefs in Aviation

Debriefs in aviation occur after every flight and are often referred to as post-flight debriefings or checks (Wagener & Ison, 2014). Debriefs in aviation, however, are embedded within a larger personnel management effort called Crew Resource Management or CRM (Salas et al., 2000). Per the Federal Aviation Administration, "CRM can be broadly defined as the utilization of all available human, informational, and equipment resources toward the goal of safe and efficient flight" (FAA, 1989, p. 2). Many different efforts to train crew leaders and other personnel on CRM exist (Salas et al., 2000), and most of them include some component of debrief training that allows for learning around the various components of CRM.

Further, debriefs in the aviation context include the flight crew, comprising the captain, co-pilot(s), flight attendants, and others (e.g. air marshal) where possible. In a review of the impact of CRM literature, Salas and colleagues (2008) provided a comprehensive database of the impact of CRM training and, to some extent, the debriefs that occur when effectively managing crew resources. Of those studies that explicitly mention debriefing as part of the training content, results indicate improvement in crew coordination (Spiker, Nullmeyer, Tourville, & Silverman, 1998), changes in behavior from the debriefing (Grau & Valot, 1997), and an increase in mission performance (Silverman, Spiker, Tourville, & Nullmeyer, 1997). However, the general structure, formality, and style associated with the flight debriefs is not fully specified in the CRM literature.

Debriefs in the Fire Service and First Responders

In the fire service and other first responder occupations, debriefs serve a specific purpose, the promotion of a positive safety climate (Allen et al., 2010). Safety climate is the shared understanding of how an organization rewards, supports, and promotes safe work behavior and what it means to be safe while engaging in work (Zohar, 2000). Specifically, one of the most promising ways to enhance the safety climate of an organization is to improve communication about events after the fact (Allen et al., 2010) and groups who effectively appraise events via interaction may be more likely to increase organizational effectiveness (Allen, Scott, Tracy, & Crowe, 2014). The debrief allows teams to reduce ambiguity about an event where proper response to an incident is critical (Crowe, Allen, & Bowes, 2015). This retrospective sensemaking is needed in order for team members who may have been physically distributed during an incident to develop a consensus about why and how the incident was managed more or less effectively and how individual and collective action contributed to its success, failure, or near failure (Dunn et al., 2016).

Because the impetus to call a debrief among a firefighting crew or first responder team is generally dependent upon the leader's discretion, debriefs vary in terms of their prevalence and processes across the various crews who may or may not use them (Allen et al., 2010). However, the structure and format are fairly similar across the board. Initiating a debrief, the leader summarizes the events that will be the focus of the conversation. The debrief is a problem-solving process. The purpose of discussion is for participants to discover strengths, weaknesses, errors, and near misses, propose solutions, and adopt a course of action to correct problems (Crowe et al., 2017). As such, a logical, structured, and chronological order of events allows first responders to internalize the effects of their action on other crews and events. A discussion of

key events focuses on critical training incidents that directly support training objectives identified by the chain of command identified beforehand. Keeping a tight focus on these particular events prevents the discussion from becoming sidetracked by issues that do not relate to training objectives. This technique is particularly effective when time is limited (Allen et al., 2010).

Making Debriefs Effective

Across the various contexts just reviewed, most of the empirical work centers on whether debriefs are effective tools (compared to no debriefs) and on the various features of debriefs that make them more (or less) effective. Essentially, ineffective debriefs are problematic because they reinforce a narrative of the event that perhaps might not be accurate, may diffuse responsibility for the problems contained therein, and may ultimately lead to groupthink (Scott et al., 2015). Recently, several meta-analyses evaluated the effectiveness of debriefs, and they have all concluded that having a debrief results in improved learning and team performance compared to not having debriefs (Cheng et al., 2014; Couper et al., 2013; Tannenbaum & Cerasoli, 2013). A review by Salas and colleagues (2008) revealed twelve evidence-based practices for effective debriefing in medical teams, though the list is instructive for all debriefing activity. The 12 practices are as follows:

1. Debriefs must be diagnostic (i.e., identify specific ways to improve work)
2. Ensure that the organization creates a supportive learning environment for debriefs
3. Encourage team leaders/members to be attentive during performance regarding what they may want to discuss later (i.e., work tasks to be debriefed)
4. Educate team leaders on the science of leading team debriefs (i.e., facilitation processes)
5. Ensure that team members feel comfortable in debriefs (e.g., psychological safety)

6. Focus on few critical performance issues during the debrief (i.e., less is more)
7. Describe specific teamwork interactions and processes involved in the team performance
8. Support feedback with objective data
9. Provide outcome feedback later (i.e., not during the debrief) and less frequently than process feedback
10. Provide both individual and team oriented feedback at appropriate times
11. Shorten time delay between task performance and debriefing
12. Record conclusions made and goals set during the debrief and follow-up

Salas et al. discuss how these have shown great promise in the medical field while others have test some of them in other contexts. For example, the use of trained facilitators or leaders (best practice #4) has been viewed as critical for the success of a debrief (Raemer et al., 2011; Tennanbaum & Cerasoli, 2013). The facilitator ensures that important points are discussed, that specific learning points are addressed if the debrief is part of a simulation, that the conversation is appropriate to the task and does not go off track (Sawyer, Eppich, Brett-Fleegler, Grant, & Cheng, 2016). An alternative to the facilitator guided debrief is that of the self-guided debrief. To ensure effective facilitation that is less dependent on the skills of team members, most self-guided debriefs utilize some form of an aid such as a checklist, list of questions, and detailed instructions (Sawyer et al., 2016). Research examining self-guided debriefs using such tools typically find them as effective as facilitator led debriefs (Boet, Pigford, Fitzsimmons, Reeves, Triby & Bould, 2016), and more effective than less structured self-guided debriefs (Eddy et al., 2013).

In addition to Salas et al.'s list, others continue to identify best practices for effective debriefs in their respective domains. These efforts have led to some general guidelines. First, if

the debrief is conducted as a part of a learning exercise or simulation, it is important that the discussion questions asked be geared toward the specific leaning objectives (Sawyer et al., 2016). Second, debriefs should include an opportunity to share and analyze information from the event, reflect on both positive and negative behaviors and outcomes, discuss near misses, and discuss ways to improve performance in the future (Kolbe, Grande, & Spahn, 2015). Third, Rudolph, Simon, Raemer, and Eppich (2008) suggest that an effective debrief is comprised of three parts: (a) reactions – where team members discuss their reactions and observations; (b) understanding – explore what happened, discuss learning objectives, develop knowledge, and generalize to future events; and (c) summarize.

In sum, debriefs are a meaningful type of workplace intervention, deployed across contexts for a variety of purposes, and their effectiveness is essential to the accomplishment of the purposes identified. Research concerning debriefs provides ample information concerning what makes for effective debriefs. We now turn our attention to the psychological, theoretical, and meaningful processes and outcomes associated with the debriefing activity as found in the literature.

The Process and Outcomes of Effective Debriefs

Prevailing theoretical assumptions suggest that debriefs enhance reliability via retrospective learning by coordinating and focusing the attention of a group around interpretations of a prior work incident for the purpose of enhancing or expanding task knowledge to be applied in similar future incidents (Tannenbaum & Cerasoli, 2013). Based on this, we suggest that there a number of factors that influence debriefs and provide a summary depiction of the debriefing process as shown in Figure 1. In this section we will discuss the theoretical underpinnings of these constructs. Several important team processes and contextual

factors have emerged as critical for team debriefs. Specifically, we will focus on sensemaking, psychological safety, and reflexivity as team processes, and leadership, organizational support, and nature of the job as contextual factors (see Figure 1).

Sensemaking

Debriefs are a context where collective sensemaking occurs retrospectively. Sensemaking is the process of structuring the unknown in the environment through the management of ambiguity (Weick, 1995). In other words, sensemaking is how groups construct and deconstruct the environment where they work in order to make some portion of that environment sensible and understandable as it relates to prior events. Because studies of debriefs employing collective sensemaking theory often focus on a group level of analysis (Allen et al., 2009; Dunn et al., 2016), they also work from the assumption that enacting, interpreting, and attempting to retain and share resulting knowledge is among the primary behavioral tasks of teams. Such an approach is "intended to guide practitioners and scholars in better understanding how AARs can be used to compile, integrate, and continuously update and improve reliability-enhancing organizational knowledge" (Scott et al., 2015, p. 636). Importantly, a primary goal of this approach is to explain not just what happens within teams but also how what happens within teams relates to other teams and organizational and/or institutional environments they share. For example, Weick's often cited (1990) study of aviation crews in the Tenerife air disaster demonstrated not just the mutual influences of communication between team members but also between these teams, their employing airlines and the institutional agencies that governed and coordinated their work.

In studying debriefs from a sensemaking theory perspective, researchers acknowledge the equivocality or ambiguity of the events being debriefed (Scott et al., 2013; Dunn et al., 2016).

Specifically, the sensemaking perspective recognizes that different individuals within the team view different portions of the incident environment in which the event occurred and do so through distinct perceptual lenses. Consequently, considerable ambiguity may remain after the incident has concluded but before it is discussed, meaning that multiple, potentially conflicting interpretations remain about what happened, why, and how. Each individual can and should have the opportunity to share their specific insights and views surrounding the event, or the event that they witnessed from their perspective. When individual views are shared in a well facilitated discussion, individuals not only share their perspectives but also have them challenged, supported, modified, and combined until some degree of consensus about the incident is developed. Nevertheless, it is important to note that debriefs rarely, if ever, eliminate all equivocality, and the goal is consensus rather than perfect agreement. This approach, when followed, ideally reduces ambiguity sufficiently to produce enough shared understanding to support group learning. Such an approach is a hallmark of HROs that avoid oversimplification and spend great resources seeking to understand every seemingly inconsequential deviation from perfect operations (Weick & Suttcliffe, 2007). Thus, sensemaking theory provides a framework for assisting teams that debrief to avoid oversimplification when applied properly.

Psychological Safety

Most researchers agree that in order to have an effective discussion that would lead to learning, teams must be willing to engage in open and honest discussion (Scott et al., 2013). When team members worry about criticism, blaming, or being censured, the discussion during the debrief is less likely to include important issues (Salas et al., 2008). As a result, psychological safety is viewed as critical for debrief success (Dunn et al., 2016; Sawyer et al., 2016).

Psychological safety has been defined by Edmondson (1999) as a shared belief that it is safe to be oneself and take risks in collaboration with others without fear of retribution. Psychological safety has been found to be related to open communication, voicing concerns, and providing feedback (Nembhard & Edmondson, 2011; Pearsall & Ellis, 2011). Psychological safety has also been found to be related to the willingness of employees to take initiative and to make suggestions (Burke et al., 2006). These sorts of behaviors, voicing concerns, making suggestions, and providing feedback, are of course particularly important for engaging in effective debriefs. Further, psychological safety has been found to be related to better learning and increased performance, especially in high risk organizations (Edmondson & Lei, 2014). When conducted appropriately, debriefs create and contribute to the ongoing maintenance of a discussion environment that is psychologically safe.

It is also important to note that psychological safety is not merely reflected in the debriefs but can actually be developed or enhanced through effective team debriefs. That is, when teams engage in debriefs and discuss what did, did not, and almost did not go well in a reasoned manner, using the event to learn rather than blame, team members are more likely to feel safe and willing to take risks in voicing concerns and criticism. However, if team members feel threatened or blamed, they are less likely to participate in the debrief and will feel less psychologically safe.

Team Reflexivity

One important aspect of team debriefs is that they allow team members to reflect on the experience and data available and use the reflection to develop goals or action plans (Eddy et al. 2013). This notion of reflection which leads to learning and change in behavior is also at the heart of team reflexivity. Team reflexivity is defined as “the extent to which group members

overtly reflect upon, and communicate about the group's objectives, strategies (e.g., decision making), and processes (e.g., communication), and adapt them to current or anticipated circumstances" (West, 2000, p. 296). As this definition suggests, key components of reflexivity are reflection, planning, and action, and therefore it seems that debriefs are intended to induce team reflexivity. Team reflexivity has been primarily linked to team creativity and innovation and team adaptation (Schippers, West, & Dawson, 2015; Tjosvold, Tang, & West, 2004). Schippers and colleagues (2014) suggested that team reflexivity provides a counter measure for team biases in information processing and decision making. Specifically, the authors suggest that when teams engage in team reflexivity, team members share and discuss relevant information, elaborate on information shared, and use it to change preconceived notions when those are inappropriate. We therefore suggest that during the debrief teams engage in team reflexivity.

Leadership and Facilitation

Leaders and facilitators have an important role in establishing the team climate in which effective debriefs can occur. It is important to note in this context that leaders and facilitators may not necessarily be the same person. While in some contexts and situations, formal leaders do indeed facilitate debriefs, in other cases, outside facilitators or team members that do not occupy a formal leadership position facilitate the meeting. This is true even for short duration teams such as those in a simulation (Kolbe et al., 2015). Team leaders and facilitators should be non-judgmental, avoid blame, focus on positives as well as negatives, and allow team members to reflect as opposed to providing them with the information (Kolbe et al., 2015). In addition, team leaders and facilitators should encourage an open discussion, and potentially some conflict. However, they must manage the conflict carefully such that the discussion would focus on the issues without resorting to personalized conflict (Farh, Lee, & Farh, 2010). Considering multiple

points of view and perspective is critical in learning from a debrief, but it is important that dissenting views be allowed, and that forced consensus, or groupthink be avoided.

When trained facilitators lead debriefs, they are able to guide the team in their reflection such that important issues are discussed (not just the easy ones), that all relevant information is integrated, and action plans are formed (Eddy et al., 2013). In fact, teams that are provided a guide and are able to self-guide the debrief are more effective than teams without such a guide (or a leader) (Eddy et al., 2013). This is likely a result of the team leader or facilitator guiding the team through reflection and assessment and ensuring that an action plan is created. Further, trained facilitators are likely to contribute to the creation and maintenance of psychological safety, leading to more candid and open communication and discussion. A meta-analysis by Tannenbaum and Cerasoli (2013) found that facilitated debriefs were more effective than those that were not facilitated, but the number of debriefs without a facilitator was low, and therefore the conclusion should be viewed with caution. It is likely that what is important is not only that debriefs are facilitated but also how they are facilitated.

Specifically, leaders and facilitators can engage in activities such as setting direction and focus, monitoring conversation, and encouraging participation, in an effort to enhance the meaning and value derived from the debrief, and providing consideration for multiple viewpoints and facilitating learning (Eddy et al., 2013). Leaders and facilitators can also model desired behavior such as open reflection, sharing information, and respectful interaction (Provost et al., 2015). However, it is important to note that research that directly evaluates the relationship between leader facilitation of open communication, psychological safety, trust, and their antecedents on the effectiveness of debriefs is limited (Dunn et al., 2016).

Organizational Support

Although leaders have a more direct influence on the effectiveness of debriefs, the role of the broader organization is also important. As noted by Salas et al. (2008), organizations must be supportive of debriefs for those to occur with any regularity and to be effective. Organizations can show support for debriefs in a number of ways. First, training on effective debriefing can be provided, first and foremost to the leaders so that the facilitation of the debriefs follows the effective guidelines outlined before (Salas et al., 2008). In addition, it is possible to train participants to do so more constructively and effectively, as team member behavior also has an effect on debrief quality (Crowe et al., 2017). Second, the organization can show support for the debrief process by implementing changes to processes and procedures inspired in these discussions. One common frustration about meetings in general is the lack of action taken (Allen et al., 2012). By implementing suggested changes, organizations are providing teams with validation as well the feeling that their time has not been wasted. Third, organizations can support debriefs by allowing teams and their leaders time to conduct these debriefs (Allen et al., 2010). Often debriefs are not conducted even when they would likely be helpful because teams are too busy doing, and believe that the time spent in a debrief is not useful (Schippers et al., 2007). Therefore, organizations can encourage debriefs by ensuring that teams have the time to engage in this activity and be encouraging members to see debriefs as work that is important and substantive.

Nature of the Job

The nature of the job also has an effect on the way in which debriefs are conducted. For example, in some jobs the team composition may be more fluid, and team leadership may change. This is more likely to happen in medical teams and firefighter teams compared to military teams. Conducting debriefs under these circumstances can be more difficult and

challenging (Reiter-Palmon et al., 2015; Wildman, Thayer, Rosen, Salas, Mathieu, & Rayne, 2012). These fluctuations in team membership and leadership make conducting a debrief more challenging, as teams have a more difficult time establishing a routine of debriefs and effective communication. Psychological safety under these conditions would be more difficult to establish, potentially reducing the willingness of team members to discuss difficult events. In addition, unless formal debrief procedures are in place, different team leaders may approach the debriefing differently, making it more difficult to the participants to navigate the less familiar process.

Another aspect of the job relates to speed. In some cases, it is difficult to conduct debriefs because additional events are taking place before the team has had a chance to discuss the previous event (Cook & Kautz, 2016). These sorts of delays and thus loss of detail may happen in emergency departments in hospitals on a regular basis, and to some extent for military teams. As a result, not only would debriefs be more difficult to implement, it is possible that the effectiveness of the debrief would be limited due to the passage of time between the event and the debrief.

Outcomes of Debriefs

One of the motivating factors for organizations across a variety of contexts to adopt debriefing activities stems from the individual, team, and organizational outcomes that flow from effective debriefing (see Figure 1). At the individual level, debriefs reduce individual's experiences of ambiguity (Dunn et al., 2016), increase their understanding of the event/incident in relation to the organization's safety climate (Allen et al., 2009), provide for learning (Busby, 1999), and, when debriefs are done well, promote satisfaction with the debriefing activity (Scott et al., 2013). Since debriefs are a type of work meeting, the positive outcomes associated with

effective/satisfying meetings may also be realized for individuals, including job satisfaction (Rogelberg, Allen, Shanock, Scott, & Shuffler, 2010) and engagement (Allen & Rogelberg, 2013).

At the team level, teams that engage in debriefing regularly and effectively enhance their teamwork (Tannenbaum & Cerasoli, 2013), their sense of belonging to the team, and improve overall team performance. In some cases, leaders of the organization may have more specific team outcomes they want from debriefings. For example, in the fire service, team safety climate is a verified outcome of effective debriefing after each emergency call (Allen et al., 2009; Dunn et al., 2016). In healthcare, debriefs have been shown to reduce events that endanger patient safety, such as falls (Reiter-Palmon et al., 2015).

In terms of organizational outcomes, a debriefing organization becomes one that learns and improves more continuously and ideally, a healthier, more effective and reliable organization. For example, when organizations have a good safety climate/culture, individuals and teams have fewer injurious or fatal accidents (Zohar, 2000). Needless to say, reducing such adverse outcomes enhances organizational effectiveness and reliability in delivering services. Additionally, when individuals are more satisfied and engaged (individual level outcomes) and teams perform better (team outcomes), naturally, organizations function better and reap the benefits of the debriefing activities.

The Future of Debriefs

Based on the review of literature, the adoption of debriefs across contexts, and the ongoing theoretical development and research in a variety of academic disciplines, the future of debriefs is bright indeed. Of particular interest are a few key areas for future inquiry and

potential application of debriefs. Several such areas are reviewed here, though many others likely exist.

Future Directions for Research

Although Figure 1 suggests the effects of debriefs are far reaching and across levels, a comprehensive study of debrief across levels including how they fit within the multi-team system is still needed. A multi-team system is "two or more teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals" (Mathieu, Marks, & Zaccaro, 2001, pp. 290). For example, in the fire service, multi-team systems operate such that the dispatch team, fire crew team, police and other first responders team, and department leadership team interact to respond to emergencies (Crowe et al., 2014). As discussed in this paper, these teams may engage in debriefing behavior within each team, but how this behavior impacts the multi-team system is unclear. Does the learning that occurs by the informal debriefs by the fire fighters get shared with dispatch or police and would this be helpful? Does team knowledge in one team translate to team knowledge in another team if such a reporting mechanism and its outcomes are shared? Would debriefing be identified as an essential part of a functioning multi-team system? In addition, while we have a good understanding of debriefs that occur within a team, how would debriefs look like and be conducted at the multi-team system level? These and other questions are essential to the further understanding of how the psychology of debriefing becomes the enactment of organizational knowledge across domains.

Another domain for further inquiry is the processes that occur within the debrief itself in terms of actual individual and team behavior in the meeting. Recent research shows the usefulness of studying communication and interactive team dynamics in meetings in relation to

team performance (e.g. Lehmann-Willenbrock & Allen, 2014), yet there is a general lack of this research in the debriefing context. In fact, Tannenbaum and Cerasoli's (2013) meta-analysis is a great case-in-point to the lack of study of the communication processes within debriefs. We have ample evidence showing that having debriefs is much better than not having them, and many academics and practitioners across contexts have suggestions on how to make them better. So now is the time for evidence-based research showing the processes (i.e., temporal interactive team dynamics) by which they are made better. Perhaps there are cycles of communicative behavior within the debrief that facilitate positive and effective outcomes for debriefs? Perhaps there are sequences of behavior, such as blaming and more blaming, that derail and ruin the debriefing experience? Observing debriefs closely and applying dynamic temporal team process analysis will lead to some important insights related to these questions.

Additionally, while it is clear that effective facilitation is beneficial for debriefs, we have limited research on the relative effectiveness of different types of facilitators. Some questions include when and under what circumstances is it effective to have a formal leader facilitate the debrief? What are the advantages and disadvantages for having the formal leader conduct the debrief? For example, it is possible that when a formal leader facilitates the debrief this may improve overall team functioning. It is also possible that team members may be reluctant to speak openly and freely particularly regarding the leader, and may be more likely to do when a facilitator from outside the team is facilitating the debrief. Given the practical difficulties of having an outside facilitator in many situations, understanding how to train team leaders or team members to facilitate effectively is an important avenue for future research.

Debriefs seem somewhat universally useful for high-reliability contexts where mistakes results in catastrophe. However, the idea of learning from mistakes or near misses has merit

beyond just those contexts where misses mean injury, property damage, or death (Weick et al., 2005). In other words, how helpful would debriefs be in non-HRO contexts? A few studies exist focusing on CRM implementation in non-HRO contexts (e.g. automotive manufacturing; Marquardt, Robelski, & Hoeger, 2010). However, it is unclear whether those studies use debriefing within the CRM training process. Still further, debriefs, like any meeting, have costs associated with the time spent debriefing that could be spent on other work tasks. In non-HRO settings, using time to debrief may be less pressing since mistakes or near misses result in, for example, a few lost sales rather than a few lost lives. Thus, researchers and practitioners may consider implementing debriefs in non-HRO contexts to promote learning, performance improvements, and so forth, while also considering the costs of doing so. Research is needed to both understand the costs and benefits, as well as the processual impact of debriefs in non-HRO contexts.

Future Directions for Practice

Technology could be used to assist with debrief facilitation, can help with providing inputs for debriefing (see Stephanian et al., 2015 for an example), and allow for debriefs in distributed contexts (e.g. Jarret et al., 2016). For example, software developers could provide a research based application or tool to be used on smartphones, tablets, or computers that provide facilitative prompts or recording mechanisms for debriefs. These could be specific for a given context or more generic and research would be needed to see if such support tools are better or equivalent to a non-technology facilitated debrief. This could be useful to initially prompt a team debrief or help guide the discussion because as Eddy and colleagues (2013) put it, “if left on their own, teams often fail to debrief, and, even if they do, their natural information processing tendencies can inhibit the quality of the debrief” (p. 4).

As Stephanian et al. illustrated, video recordings of simulations could help gather data and provide inputs into the debriefing thereafter for increased learning and behavioral exemplars. This could be used to help participants interpret what the "data" means. Further, Jarret's comparison of collocated and distributed debriefs gives some indication of the usefulness of debriefing even when collocation is not possible. What is not known is how these varied technology offerings could work together, how that compares to face-to-face standard debriefs, and how universal the benefits are for debriefing when these variations in implementation exist.

Another important practical implication has to do with training. As noted, debriefs do not tend to occur automatically or in a well-designed fashion (Eddy et al., 2013), and the conditions that make team debriefs effective are not easy to achieve. As such, developing training for both debrief leaders and team members to discuss how to achieve these effective conditions may be beneficial. Research on such training is limited (Smith-Jentsch et al., 1998), but does shows that training can facilitate effective debriefs. Additional questions need to be addressed regarding how to train team members as well as leaders. For example, training may include a discussion of how to establish an environment where psychological safety is created, so that individuals feel comfortable discussing events honestly. Discussion of how to deliver feedback in a way that promotes learning and does not place blame can also be included. Of course, research is needed to determine if training in general and the specific content of training facilitates effective debriefs.

Conclusion

Debriefs continue to provide great promise for the future or individuals, teams, and organizations across contexts. The learning, performance gains, and specific desired outcomes (e.g. safety climate) that flow from consistent, effective debriefs make them one of the more

practical tools for organizations and leaders to consider implementing. Consistent the process of debriefing and outcomes discussed therefrom, debriefs help individuals/teams “make sense” of highly equivocal and ambiguous situations, learn from them, and perform better and safer moving forward. The future research and practice opportunities just outlined holds hope for the future of the interdisciplinary implementation of debriefs.

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Table 1

Terms Used to Refer to Debriefing Activity

Term	Definition	Example References
After-action review (AAR)	A structured process for analyzing what happened, why it happened, and how it can be done better by the participants and those responsible for the project or event.	Allen, Baran, & Scott, 2010; Cook & Kautz, 2016
After-event review (AER)	A learning procedure that gives learners an opportunity to systematically analyze their behavior and to be able to evaluate the contribution of its components to performance outcomes.	DeRue, Nahrgang, Hollenbeck, & Workman, 2012; Ellis, Mendel, & Nir, 2006
Crew resource management (CRM)	The effective use of all available resources by individuals and crews to safely and effectively accomplish the mission or task, as well as identifying and managing the conditions that lead to error.	Flin & Martin, 2001; Myers & Orndorff, 2013
Debrief	A discussion and analysis of an experience, evaluating and integrating lessons learned into one's cognition and consciousness.	Andersen, 2016; Fanning & Gaba, 2007
Hot Wash	The immediate discussions and evaluations of performance following an exercise, training session, or major event.	Comfort, 2007; Sinclair, Doyle, Johnston, & Paton, 2012
Huddle	A frequent form of structured communication among members of the team to plan for daily tasks and roles, and to review any barriers or facilitators of the day's work.	Fogarty & Schultz, 2010; Quinn & Bunderson, 2016

Table 2

Contextual Differences and Uses of Debriefing Activities

Context	Terms	Key Uses and Purposes	Example References
Military	AAR	Information feedback, performance measurement, problem-solving/decision-making, enhancing group identity and cohesiveness, experiential learning	Morrison & Meliza, 1999; O'Shea, 1999
Healthcare	Debrief	Establish a safe learning environment that facilitates a meaningful dialog allowing for reflective self-discovery of the learners' performance	Ahmed, Atkinson, Gable, Yee, & Gardner, 2016; Cant & Cooper, 2011
Aviation	CRM	Improving flight safety and minimizing accident rates	Flin & Martin, 2001; Mearns, Flin, & O'Connor, 2001
Fire Service and First Responders	AAR AER	Allows employees to make sense of hazards or impediments encountered and decide which actions taken were correct or incorrect.	Biddinger, Savoia, & Agboola, 2012; DeRue, Nahrgang, Hollenbeck, & Workman, 2012

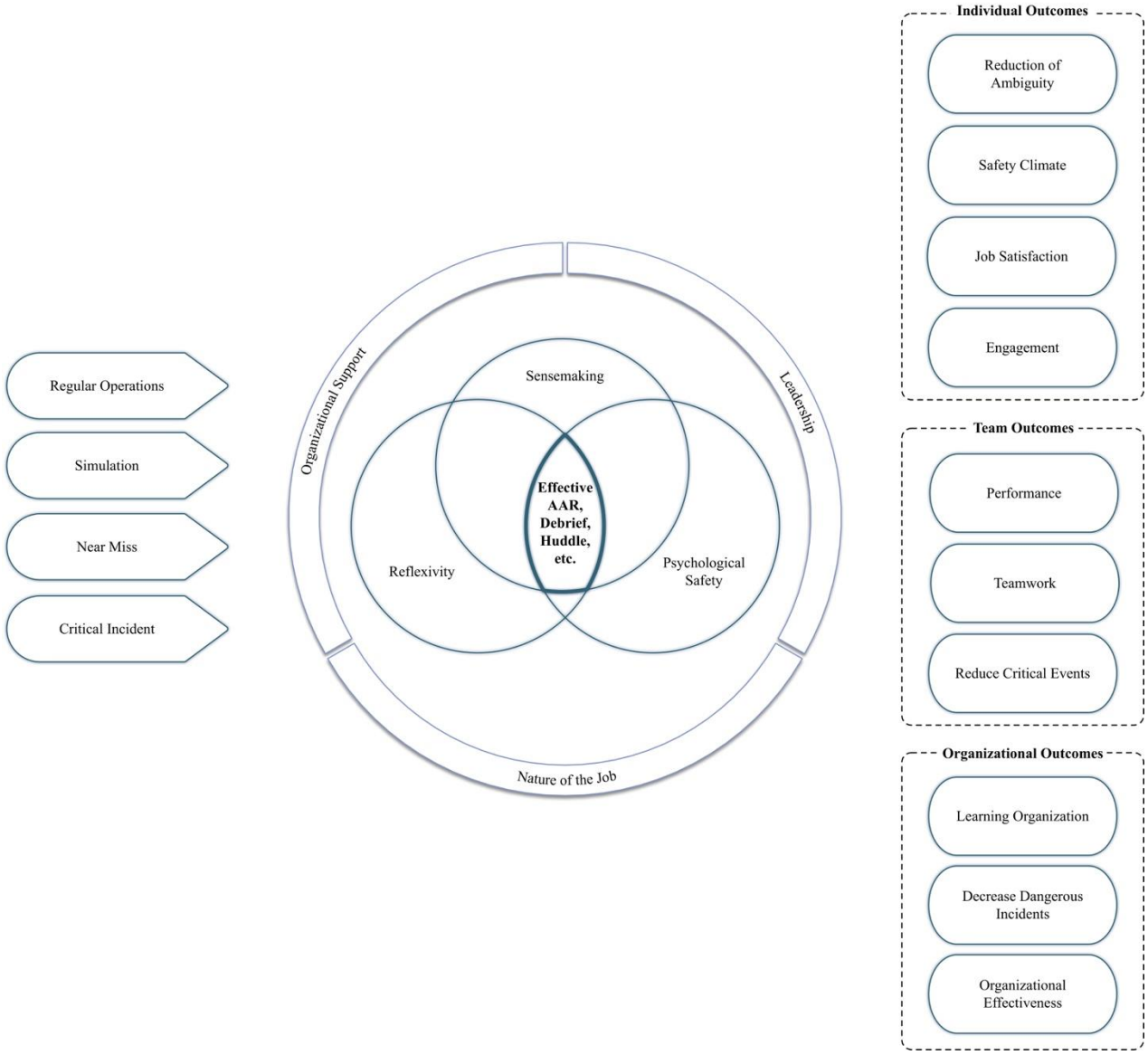

Figure 1. Debrief process