The Staff Ride: An Approach to Qualitative Data Generation and Analysis

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Abstract

The authors present and illustrate the research staff ride—the re-creation of a historical event for the purpose of understanding organizational phenomena through observation, reflection, and discussion. Staff rides make unique contributions to research through the independent analysis of events outside organizations by content experts who collectively and concurrently reflect on retrospective data while experiencing context. Staff rides involve the examination of ordered sequences of contextually bound events and, thus, promote participants' understanding of the dependence between past and future observations. In this article, the authors elaborate on the types of data, data collection procedures, and data analyses for research staff rides. Importantly, they discuss potential strengths and challenges associated with staff rides in qualitative research, along with ways to address these challenges.

> You just cannot get the full effect of what happened [at the South Canyon Fire] and what it was like until you've walked the ground, felt the steep terrain, seen the vegetation, experienced the heat and had the wind in your face. The whole scenario seemed so different than what I had read.
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> —W. E. Holmes (2005, p. 26)

In many occupations, employees confront dynamic and unpredictable situations at work that may result in serious injury or death (Campbell, Hannah, & Matthews, 2010; Centers for Disease Control, n.d.). In-depth examination of nontraditional, *in extremis* (Latin, "at the point of death") work settings and behavior is critical, yet research access may be difficult (Bamberger & Pratt, 2010; Johns,

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2006; Kolditz & Brazil, 2005; Siggelkow, 2007). In this article, we describe the staff ride as a qualitative approach for understanding work context, including work behavior in extreme settings.

Staff rides are planned learning events that take place at historical sites. Conducted on horseback in the open terrain, the first staff rides immersed military leaders in important battle sites in anticipation of war in order to convey lessons of strategy and decision making (Ossad, 2006; Robertson, 1987). As described in the wildfire example above (Holmes, 2005), experiencing a staff ride adds the intensity of the real-life event and helps participants better understand behavior in complex circumstances.

Although staff rides have been recognized for their pedagogical value for more than 100 years, to our knowledge the efficacy of the staff ride for research purposes has not previously been examined. This gap in the literature is notable given that a retrospective analysis of historical data provides rich phenomena for understanding context and situated action (Kayes, 2004; Useem, Cook, & Sutton, 2005; Weick, 1993; Whiteman & Cooper, 2011). Staff rides extend traditional retrospective analysis because knowledgeable experts gather at the original or a re-created site to concurrently and publicly reflect on context.

Our focus is the research staff ride—the re-creation of a historical event for the purpose of understanding organizational phenomena through observation, reflection, and discussion. Importantly, staff rides make a unique contribution to research through the independent analysis of events outside organizations by content experts who collectively and concurrently reflect on retrospective data while experiencing context. Ideally, staff rides take place at the original site but can be re-created at a location conducive to research. Reconstructing an event builds on first-person accounts and archival data, allowing new interpretation. Significantly, new findings can emerge through the open reflection and dialogue of content experts, despite confusing or conflicting data. Given that a staff ride involves the examination of an ordered sequence of contextually bound events, an important benefit is that this method promotes participants' understanding of the dependence between past and future observations.

To unfold our discussion, we first review the background of the method through its history as a form of military instruction. Here, we also elaborate on the design features and characteristics of wildland firefighting staff rides. Next, we review staff ride methodology within the context of the qualitative research tradition while describing its unique contributions. Subsequently, we discuss data collection and analytic procedures. Importantly, we provide an example of a modified staff ride that extends the potential for understanding behavior in extreme settings and the role of work context more generally. Finally, we discuss the strengths and limitations of staff rides and ways to address these challenges.

Historical Foundations of the Staff Ride

Staff Rides for Military Purposes

Although officers trained in *kriegsspiele* (war games) prior to the rise of Napoleon, the origin of the staff ride is generally credited to Helmuth von Moltke, military strategist and chief of staff of the Prussian (subsequently German) army from 1857 to 1887 (Hall, 2005). Recognizing that elaborate plans given far in advance would be abandoned when soldiers came into direct contact with the enemy, Moltke adapted a strategy that could be applied to the changing conditions of the battlefield. Notably, he brought hand-picked officers to sites where conflict was likely to happen so they could gain a sense of the topography of the setting, an approach that expanded across Germany and beyond (Haycock, 2005).

The first U.S. staff ride took place at Fort Leavenworth, Kansas, in 1906 (Robertson, 1987). Major Eben Swift led a two-week reconstruction of Sherman's 1864 battle at Atlanta, Georgia, with

12 Army officers. A visit to a historic battlefield such as Gettysburg also embodies the basic concept of an instructional staff ride (Harper, 1997; McCarthy, 2001). Yet, not all military staff rides concern battles: The Lewis and Clark staff ride documents the Army's mission to discover a water route to the west coast (Collins, 2004).

Staff rides are a critical component of advanced military training and include:

> a systematic preliminary study of a selected campaign, an extensive visit to the actual sites associated with that campaign, and an opportunity to integrate the lessons derived from each. The staff ride leader envisions maximum student involvement before arrival at the site to guarantee thought, analysis, and discussion (Robertson, 1987, p. 5).

Military staff rides for pilots include prestudy, a mission flight, and a landing to inspect targets (Caddick-Adams, 2005; Van Nederveen & Mortensen, 2002). Furthermore, modern military staff rides focus on the tactical and operational aspects of war and can be re-created at remote sites using satellite imaging, electronic mapping, digital video, and cell phones.

Staff rides are distinguished from battlefield tours and reenactments in that the former require systematic preparation and analysis whereas the latter rely more generally on historical narrative (Lloyd, 1998; Melvin, 2005; Ryan, 2007). Staff rides make use of incident analysis—the critical incident technique (Flanagan, 1954) specifically. Critical incidents are descriptions of work settings that include especially effective or ineffective actions concerning how workers adapt to changes in the work context (e.g., see Chell, 2004; Pulakos, Arad, Donovan, & Plamondon, 2000). Staff rides consist of episodes that are, in part, based on "critical incidents" associated with historical events.

In focusing on participant understanding of organizational phenomena, staff rides share some features of ethnography and phenomenology with respect to design and conduct (see Creswell, 2007, and Hammersley & Atkinson, 2007, for more detailed discussions). Staff ride participants, through immersion in the episodes and discussions of the historical event, are directed toward developing a greater understanding of the "lived experiences or realities" encountered by the original actors. In this regard, a philosophical premise of the staff ride is that reflection, specifically public reflection, and experience among ride participants are not dualistic but rather can be viewed appropriately as playing off one another and leading to greater learning. To illustrate, we turn to an example of how the instructional staff ride incorporates critical incidents and work experience in wildfires.

Instructional Staff Rides for Understanding Wildfires

In 1999, the U.S. Forest Service reconstructed a 1990 fire blowup that occurred at Tonto National Forest in which six firefighters had been killed (Keller, 2002a; Weick, 2002). Eight sites (called *stands*) were staffed by eyewitnesses who facilitated discussion. Weather forecasts, fire danger predictions, fire behavior, maps, shift plans, video footage, and photographs were reviewed, and the actions of firefighters were compared with those during fires at Mann Gulch and South Canyon (Keller, 2002b). The Forest Service has since conducted staff rides of important fire events in Alaska, Arizona, California, Colorado, Idaho, Maine, Michigan, Montana, New Mexico, Nevada, Utah, and Wyoming.

Wendy Becker, the senior author, participated in a re-creation of the 2005 wildfire near Missoula, Montana, on May 22-25, 2006. The staff ride followed the steep terrain and time sequence of the fire, with participants discussing the unexpected events, oversimplifications, and small failures that impeded work performance (U.S. Forest Service, 2006). The final stand at the mountain summit provided an integration of the actions taken by the firefighters and, at the same time, stimulated new insight into decision making and work behavior during fire events.

Participants at wildfire staff rides experience work context while reflecting on historical fires and possible future fires. Here, reflection and experience are not considered dualistic but play off each other, promoting greater understanding of the past (also see Dewey, 1933; Miettinen, 2000). Notably, staff rides involve stopping at key decision points (e.g., stopping at the "blowup stands" in wildfire rides) to stimulate participants' public (i.e., expressed in the presence of others) reflections and dialogues. Stopping coupled with public reflection and dialogue permits participants to see more deeply what is being experienced during the ride. Useem et al. (2005) cite participant commentary and insight during a day-long walk of the South Canyon fire zone as critical to their analysis of leader decision making under duress.

Making sense of episodes that comprise an event is ongoing; the event is reshaped in the presence of others, including informants involved in the original event (Weick, 2002; Whiteman & Cooper, 2011). Being united in this way helps construct enacted learning through the dialogic process despite confusing and conflicting data (Nonaka, 1994). This reflection in action integrates spirals of activity with tacit and explicit knowledge (Raelin, 1997, p. 565). In the metaphor of the self-guided bus tour, individuals hop on and off to explore areas of a city on foot. As Raelin (2001) stated, "If you choose never to get off the bus, your experience is broad but perhaps superficial" (p. 20).

The epistemological purpose of reflective practice, as embodied in the instructional staff ride, is one that we consider primarily as dialectical knowing, which views reflection as the reorganization or reconstruction of experience that is mediated through colleagues (Grimmett, Erickson, Mackinnon, & Riecken, 1990). From this perspective, practice can be transformed by asking staff ride participants to attend to features of a situation previously ignored. Importantly, it was through participation in the Montana fire staff ride that we recognized that carefully attending to context and dialogue yields not only meaningful lessons for practitioners but also insight relevant for research. We now turn to a discussion of the efficacy of the staff ride for qualitative data generation and analysis.

The Staff Ride for Research Purposes

Methodological Foundations

Research staff rides re-create historical events for the purpose of understanding organizational phenomena through observation, reflection, and discussion. In this regard, staff rides identify "a particular set of problematic or interesting events and relationships that naturally occurred in the real world" (Starke & Strohschneider, 2010, p. 115). As in the case study, the staff ride "examines, through the use of a variety of data sources, a phenomenon in its naturalistic context, with the purpose of 'confronting' theory with the empirical world" (Piekkari, Welch, & Paavilainen, 2009, p. 567). Immersing content experts in context (actual or re-created) facilitates interpretation. In this regard, the staff ride builds on case study research such as the retrospective case study (see Street & Ward, 2010) by providing a means for knowledgeable experts to concurrently experience and reflect on organizational phenomena.

Maclean's (1992) retrospective analysis of the smokejumpers at Mann Gulch demonstrates the value of an independent review of an event outside the organization in which an event originally occurred:

> The Forest Service moved quickly, probably too quickly, to make its official report and get its story of the fire to the public. It appointed a formal Board of Review, all from the Forest Service. . . . It is hard to see how in such short time and so close to the event and in the intense heat of the public atmosphere a convincing analysis could be made. . . . In four days they assembled all the relevant facts, reviewed them, passed judgment on them, and wrote what they hoped was a closed book on the biggest tragedy the Smokejumpers had ever had. (p. 148)

Weick (1993) and Whiteman and Cooper (2011) use Maclean's data for their retrospective analyses, but note that it was Maclean who visited the site and developed the original data:

> As early as 1976 I started the serious study of the Mann Gulch fire by trying to recover the official documents bearing on it and at the same time reacquainting myself with the actual ground on which the tragedy had occurred. (Maclean, 1992, p. 156)

Using retrospective data, the research-oriented staff ride provides independent analysis outside the organization involved with the original event.

Importantly, the research-oriented staff ride, like the instructional staff ride as discussed above, is in part based on critical incident methodology. Methodologically, staff rides also share several characteristics with participant observation and plant tours in that they are context rich and rely on close observation from the participant's perspective. Yet, whereas participant observation focuses on the "here and now" and may involve deception, staff rides are retrospective, with participants fully aware of their roles. Instructional staff rides and plant tours both involve practical learning experiences for managers. In the plant tour, the organization reveals the facility and its operation while limiting what visitors see and hear (Upton & Macadam, 1997). By viewing multiple plants, tour visitors build a base of comparison. Staff rides are distinctive in their focus on a specific research problem or event. Data from multiple sources (and organizations) can be independently analyzed and interpreted within the staff ride. So, although both plant tours and staff rides include observation, reflection, and discussion, the research staff ride is systematic in its analytic approach, uses data from multiple sources, and is focused on expert participants' interpretations of the event.

Consistent with the case study, research staff rides generate, elaborate, or test theory using specific research propositions (also see Gibbert & Ruigrok, 2010; Lee, Mitchell & Sablynski, 1999; Locke & Golden-Biddle, 2002; Vaughan, 1992). Staff rides are particularly efficacious for elaborating theory with regard to the role of context, mediated through group discussions involving knowledgeable experts. Furthermore, staff rides can be used for both inductive and deductive purposes and framed within different research traditions, such as positivism and postpositivism, interpretive and naturalistic approaches, and critical postmodernism (Gephart, 2004). A positivist or postpositivist approach to staff rides could develop a generalizable theory using evidence accumulated through deductive processes, including literature reviews and gathering new data; the goal would be to uncover facts or collect data that can be compared to hypotheses or propositions previously developed. An interpretive or naturalistic approach to staff rides could develop theory inductively using an emergent design to make sense of underlying processes with a goal to develop an understanding of actions and social processes in their natural setting. Finally, a critical postmodernism approach could use the staff ride as a means for examining how the historical event and, perhaps, lessons taken away from the event by others were shaped or constrained by social, political, and cultural conditions. For example, the staff ride could be used to gain insight into "shadow" organizations in which people form networks, play political games, and avoid bureaucracy (Mintzberg, 1979).

Phases of the Staff Ride

Phase 1: The preliminary study. As described below, staff rides have three distinct phases: a preliminary study, a field visit, and integration. The purpose of the preliminary study is to provide a systematic review of all background material, including an outline and chronology of significant episodes, and the development of initial theoretical arguments and expectations. Administrative logistics, background material, and permission (if needed) for access to the field site should be obtained by the primary researcher at this time. New data, such as taped or transcribed interviews

with survivors or witnesses to the original event, may also be collected for information about actions taken. Chell (2004) provides a useful critical incident protocol that can be adapted for this purpose.

Note that hypotheses developed during the preliminary stage are viewed as tentative, with the understanding that they will be critically examined during the remainder of the staff ride. It is important to note that the preliminary study phase is consistent with the conduct of many research studies in their entirety, where findings for the latter type of study would not necessarily be viewed as tentative and subject to scrutiny within the discipline.

Phase 2: The field visit. The second phase involves a meeting at an actual or re-created field site. The primary researcher and knowledgeable others re-create the event by reviewing episodes or incidents in chronological order. At this time, participants make observations and discuss specific episodes and critical incidents. As in the preliminary study, new data may be collected at this time.

As in a research-oriented focus group, participants are invited because of their content (knowledge) expertise or previous involvement and interest in the event at hand (Bachiochi & Weiner, 2002; Krueger & Casey, 2000; Stewart, Shamdasani, & Rook, 2007). During this phase, the primary researcher or an appointed moderator facilitates public reflection and dialogue about each incident and the actions that occurred within that context. Using open-ended questions, the primary researcher functions as phenomenological interviewer, allowing the atmosphere to remain open and the field visit to be controlled equally by participants (see Stewart et al., 2007). For although the primary researcher has chosen the research topic, the field visit proceeds with both participants and investigator clarifying meaning as the event unfolds (see Pollio, Graves, & Arfken, 2006).

It is important to emphasize that although events during the field visit are planned in advance and occur at specific points or stops along the way, the primary researcher does not lecture and participant behavior or reflection is not planned. The type of reflection engendered by the staff ride is akin to "reflection-in-action" where participants' public reflections are active and occur as spontaneous mental processes intended to make sense of the experience (see Schön, 1983). Thus, participant reflection during the research staff ride differs from "coached reflection," which represents a structured and contemplative form of thinking (see Seibert, 1999).

Furthermore, the field visit is rich with respect to the discussion of situated action, with ride participants keenly aware of the varied material landscapes and ecological processes (changes in weather conditions) associated with the historical event. At this stage, the effort on behalf of the primary researcher is to have ride participants publicly reflect on episodes while experiencing the event. The public reflection is intended to fully engage the participants and evoke reflective consciousness. *Reflective consciousness* refers to the highest level of reflection in adults and the level that arguably leads to learning and new meanings (Mezirow, 1981, 1991; Raelin, 2001). Importantly, staff ride reflection occurs in public, with peers who can detect other ride participants' biases and untested assumptions. As such, staff ride public reflection-in-action has considerable potential for enhancing learning about organizational phenomena. As stated by Raelin (2001), "Our experience with others informs us, pulls us, and even transforms us" (p. 20). In this regard, theoretical arguments and misconstrued meanings from the preliminary phase can be refined and altered as new insights are presented and discussed during the field visit.

Phase 3: The integration. The final phase integrates the preliminary phase and field visit. This involves assimilating participants' impressions and insights relative to each episode and the findings derived from the overall investigation. Importantly, we advocate for a general debriefing in the form of after-action reviews, shown to be beneficial for generating dialogue and reflective thinking on behalf of workers (Baird, Holland, & Deacon, 1999). Here, questions focused on lessons learned relative to contextual, organizational, and personal factors or their interaction may be posed. (The reader is referred to Burke, Scheuer, & Meredith's 2007 article for a discussion of individual and

group dialogue-based approaches to enhance learning during and subsequent to participants' involvement in highly engaging activities.)

During this phase, the primary researcher may integrate information generated from multiple staff rides of the target event. Regardless, the integration phase involves moving deeper into understanding the data, representing the data, and deriving meaning from the data. While staff rides yield data for analysis with respect to different types of generic qualitative research strategies, such as grounded theory and phenomenological research, we view the data as most amenable to strategies that follow a case study or grounded theory approach to research (Creswell, 2007; Wolcott, 1994). In particular, the primary researcher develops a detailed description of the setting and original participants and present themes or issues with an emphasis on an understanding of situated action and ecological sense making. Here, *ecological sense making* refers to the process used to make sense of material landscapes and ecological processes (e.g., climate, animal patterns, fire; Whiteman & Cooper, 2000). Appendix 1 provides web links for several staff ride exemplars.

Further Comments on Staff Ride Data Generation and Analysis

The design of the staff ride is quite flexible, permitting a variety of questions, depending on research purpose. Research hypotheses drive the development of the data in the staff ride and allow for reliability checks. An analogy can be made to crime scene reconstruction, in which investigators use basic tools of logic and the scientific method to demonstrate and support their conclusions so that others may replicate the work (Dale & Becker, 2007).

Selecting a Staff Ride and the Recruitment of Participants

The primary researcher selects the site, setting, critical incidents, and/or individuals to be studied. Selection of the event is intentional in that it is representative of the phenomena of interest. In-depth understanding of concepts is integral to the process; as such, content experts, witnesses, and those who are otherwise knowledgeable of the event are recruited. Participation is limited to a number that can be reasonably involved in a meaningful discussion.

Data Collection

Data collection is typically qualitative, using observation, interviews, documents, and audiovisual materials (Creswell, 2007). Material containing first-person accounts often can be obtained unobtrusively, through archival records, letters, memos, administrative reports, maps, charts, and newspaper clippings (Webb, Campbell, Schwartz, & Sechrest, 2000; Zaitzow & Fields, 2006). During the staff ride itself, discussions of specific episodes may be recorded (via video, audio, or written notes) for subsequent transcription and analysis. Websites allow interactivity among participants and provide the means for collecting and analyzing electronic messages. Graphical representations such as maps and templates can also be developed for data collection. Checklists help focus participant attention and can reduce the amount of data to manage (Bachiochi & Weiner, 2002).

The primary researcher or an assigned note taker constructs reflective notes about issues discussed, hunches, impressions, and prejudices, if any, related to the ride and its participants (also see Bogdan & Biklen, 1992; Emerson, Fretz, & Shaw, 1995). The latter information is particularly helpful for final data analysis and interpretation of findings, as well as for investigations using multiple staff rides of the same historical event.

Spradley (1980) suggests a simple data collection strategy beginning with "grand tour" observations to gain an initial sense of overall parameters. Nine social situation dimensions provide a comprehensive map, including space (the physical place or places), actors (people involved), activity (a

set of related acts), objects (the physical things that are present), acts (single actions that people do), events (a set of related activities that people carry out), time (the sequencing that takes place over time), goals (the things people are trying to accomplish), and feelings (the emotions felt and expressed). The resulting 9×9 matrix suggests 81 specific research questions, using every possible combination (Spradley, 1980, p. 78). This strategy broadens research attention to questions that might otherwise be overlooked. Supplementing this approach with audiotaping or videotaping would further develop the data collection matrix (i.e., combinations of the aspects of social situations).

Data Analysis

Data analysis follows general procedures for qualitative research including preparing and organizing data, reducing data into themes through a process of coding, and representing the data in figures, tables, or discussions (Creswell, 2007). Specific techniques are determined by the purpose of the study, the nature and content of the data, the quality of existing theory, and the researcher's background and experience. As noted above, inductive or deductive approaches to data analysis are considered, dependent on research purpose. A grounded theory approach would emphasize the development of hypotheses, core concepts, and categories as they emerge from data, rather than defining them a priori as in deductive theorizing (Glaser & Strauss, 1967). Data acquired from the preliminary study of the staff ride, such as text fragments, would be coded, and the primary researcher would use an ongoing process of interpreting data and building theory as the staff ride progresses through the three phases.

Alternatively, the empirical tradition in case study research consists of constructing and testing hypotheses (see Starke & Strohschneider, 2010; Yin, 2009). Answering "how" and "why" questions about causal relationships characterizes a deductive, empirical research tradition. Specific data analytic techniques that may lend themselves well to examining hypotheses in staff ride research are pattern matching and time series analysis (see Yin, 2009). Pattern matching compares empirically based patterns in the staff ride with predicted ones; examples of results could be the expected outcomes, rival explanations, or simpler patterns. Time series analysis addresses questions about relationships that occurred over time, as determined from a staff ride.

Related information collected for the development of a staff ride, such as images and decision charts, can be analyzed and interpreted through visual representation (see Miles & Huberman, 1994). The primary researcher may use visuals to enhance the realism of the staff ride but also may choose to analyze the visuals themselves. Further, the impact of the visuals on staff ride participants may be analyzed, as visuals can be powerful stimuli that elicit critical, public reflection and a transformation of perspective concerning beliefs about an organizational phenomenon (see also Mezirow, 1991, 1998, for further discussion of conditions that promote critical reflection). More specifically, visuals related to critical episodes of a staff ride have the potential for stimulating dialogue and public reflection about the emotional, physical, and mental demands that the original participants faced. In addition, the degree to which a situation (especially a nonroutine situation) required improvisation, innovation, a change in procedure, or an important decision can be explored using visuals in the staff ride.

The data generated can provide broad coverage of thematic topics over the long time spans and settings that comprise historical events. Regardless of the types of data collected and the analytic approach deemed relevant, a well-developed methodology with systematic, comprehensive, and exhaustive analysis of data is required (Gephart, 2004). This point is especially relevant in staff rides with different types of data collected in multiple phases. Here, the primary researcher must communicate precisely how information collected in each phase was transformed into data and analyzed. Next, we illustrate the types of data, data collection procedures, and data analytic approach that can be employed in a modified application of the staff ride method.

The Great Bear Wilderness Staff Ride

On September 20, 2004, a single-engine Cessna transporting U.S. Forest Service researchers crashed in the Rocky Mountains in an area known as the Great Bear Wilderness. Episodes that unfolded contradicted the beliefs of authorities that there were no survivors. The U.S. Forest Service investigative report called for organizational change (U.S. Forest Service Management Evaluation, 2005). Yet two survivors overcame environmental obstacles, resulting in a vivid and illuminating case with revelatory data for understanding in extremis team behavior. (The reader is referred to Becker's 2007 article for a detailed description of the accident at Great Bear.)

We designed the staff ride with the specific aim of elaborating theory on team learning and decision making (Becker & Burke, 2007). Although, ideally, staff rides are conducted at the original site, in this example the staff ride was modified as a structured, re-created event in a conference setting conducive for audience discussion and interaction. Here, the example is used to illustrate the three phases of a staff ride and demonstrate the systematic processes used to involve other researchers and analyze staff ride data. As in the Great Bear example, the unique format stimulates interaction with high relevance to other researchers and may lead to a reconsideration or modification of our original theoretical arguments or understanding of the event.

The objectives of the Great Bear Wilderness staff ride were to

- build on our understanding of the breakdown of team learning (e.g., Kayes, 2004);
- gather together an audience of researchers interested in team behavior;
- provide visual aids, including large maps of the area of study, a physical terrain model re-creating the target area of the incident with radar returns and flight plan, and a video-based re-creation of the flight;
- identify key team decision points using an accurate chronological timeline, and guide research participants (using visual aids) through a discussion of how team decision making unfolded during each episode of the accident;
- analyze how organizational-level failures affected the outcome of the event; and
- consider the implications of participants' discussions for our theoretical arguments.

Appendix 2 provides the time and activities for the preliminary study, field visit (re-creation), and integration phases. We note that time periods for the phases in this example were established to conform to the workshop time allotments of the sponsoring organizations. It is important to recognize that time periods for phases of staff rides can and should, where appropriate, be set to permit adequate observation, discussion, and reflection of critical incidents and events that comprise the staff ride. Appendix 3 provides the narrative overview used with participants.

Phases of the Great Bear Staff Ride

Phase 1: The preliminary study. Researchers interested in team processes were invited to participate in a professional development workshop. Research documents included articles, press releases, official government investigations, photographs, and charts. In addition, transcriptions of interviews with survivors and search and rescue personnel were obtained using Freedom of Information Act requests. Eyewitness interviews were conducted by the National Transportation Safety Board (NTSB; 2005) investigator. The NTSB uses a cognitive interview protocol to elicit descriptions of the actions taken by those involved in the context of events (Fisher, McCauley, Falkner, & Trevisan, 2000). Transcriptions of two survivor interviews (119 pages recorded September 23, 2004, and October 18, 2004) and three search and rescue pilots (112 pages recorded September 24, 2004) were obtained. The senior author arranged a chronology of flight operations, key decision points and episodes, and search and rescue actions. Building on the chronology, a detailed

description or narrative of the context, the actions of team members, and the outcomes of their actions was developed. Official reconstruction of radar returns, flight plan, and probable route, along with visual images of the crash scene and terrain, were obtained. The second author independently reviewed the sequence of events, key episodes, contexts, and team member actions, confirming the accuracy of the accident chronology and narrative. A final check for accuracy included verification of the accident chronology and narrative by the survivors. The combination of triangulated data, intercoder reliability checks, and validation from participants limits potential sources of bias in the final database (see also Eisenhardt & Graebner, 2007).

We contracted with an architectural firm to create an accurate scale model of the topography of the terrain at the Great Bear Wilderness accident site. The physical scale model was constructed from a solid piece of high-density polyurethane foam and a high-speed milling process using global positioning system (GPS) data of a 50-mile radius of the accident site. The flight plan, radar returns, and probable flight route were reconstructed on the three-dimensional terrain model. In addition, an annotated Google Earth tour of the probable flight plan was obtained using imported GPS data. The goal of the physical terrain model and recorded video tour was to provide dynamic visual aids for researchers during the field visit re-creation.

Phase 2: The field visit. In this instance, the field visit involved a re-created context, and it unfolded as follows (see also Appendix 2): We (the authors and primary researchers) provided a brief review of the material from the preliminary study for the September 20, 2004, accident. Next, we presented episodes of the case in a chronological sequence, using PowerPoint visuals. Subsequently, participants were invited to gather around the physical terrain model. Throughout, official government investigative materials such as the NTSB blue-ribbon final report, official photographs of the accident evidence, and newspaper accounts were available for viewing by participants. A Google Earth tour of the flight plan was provided on a computer monitor. We engaged in an open-ended question session with participants. We alternated data collection for the field visit in terms of note taking during discussions with participants.

Phase 3: The integration. At the start of the integration phase, participants were brought together for an after-action review. During this review, dialogue and reflection on behalf of the participants challenged several of our assumptions and preliminary findings. For example, the participants' examinations of flight origination photos and survivors' accounts of discourse between the pilot and the chief of party led to a reinterpretation of an initial, critical decision to fly. Participants noted that considering ground weather conditions and quotes from survivors pointed to the decision to fly as an example of an anchoring effect (i.e., the crew leaders' anchoring on an initial very poor weather report from the flight destination site), an idea we had not previously considered. Initially, we had focused on aerial photography of en route and destination weather conditions at the approximate time of flight operations. This focus had led to a preliminary conclusion that the decision to fly in bad weather was a more or less straightforward leader decision aimed at task accomplishment.

Participants' examinations of the wreckage context (including photos, topography, and reports related to changing weather conditions) and recalled discourse between survivors at the wreckage site also resolved an apparent inconsistency in our preliminary theoretical arguments. In the preliminary study, we had relied on arguments from social and experiential theories of learning to reach a tentative conclusion that both the survivors' decision to stay at the crash site and the subsequent decision to leave the crash site were evidence of the role of persuasive dialogue in efficacy (for survival) formation and reformation. Our tentative conclusion was heavily influenced by the persuasive comments of the chief of party to initially stay at the crash site and the subsequent persuasive comments of the surviving forestry scientists. In the staff ride, we offered the role of persuasion as the

explanatory mechanism both for the crew's initial efficacy formation (for survival by staying at the crash site) and for why the crew's efficacy changed (to survive by leaving the crash site).

During the integration phase of the staff ride, several participants noted that although the chief's statements were in fact persuasive, they were also highly focused on the goal of staying at the crash site to assist him, as he had multiple injuries including a broken leg that rendered him unable to leave the site. However, the ride participants also focused on how ecological conditions (snow, dropping temperatures, and the frozen terrain) along with assessment of the survivors' health status affected their decision to leave the crash site. In short, the staff ride participants pointed to a change in goal structure tied to the survivors' ecological sense making as the primary reason for why decisions were made initially to stay (to assist the chief's efforts to survive) and subsequently to leave in order to survive in light of changing ecological conditions and their physical health. Notably, the latter interpretation more closely reflects a change in goal structure resulting from the survivors' assessment of their physical well-being interacting with the ecological elements, rather than strictly focusing on changes in efficacy for survival due to persuasive arguments. This example pointed to the value of the integration session as a means for researchers developing a better understanding of how ecological conditions, topography, and changes in the survivors' health status, in interaction, affected sense making and survival. This finding is important as there is little research on how the natural world affects sense making (Gephart, 1996; Whiteman & Cooper, 2011).

A third example highlights the importance of open exchange of information and independent verification of materials as part of the staff ride research process. Authorities had previously described the accident as a random event that could not be foreseen or prevented and had noted that the plane was "in the wrong place at the wrong time." However, staff ride participants noted that delays in the search and rescue and the announcement declaring no survivors could be considered as breakdowns in team coordination. Retrospective review of the timeline integrating data from multiple investigating agencies was critical to this development.

Through interaction during the staff ride, we increased our understanding of how work teams function (or fail to function) in complex and dynamic tasks under time pressure or great stress. Building on Weick's (1993) and Kayes's (2004) work, the staff ride provided an opportunity for insight into the dynamics that influence team processes. In particular, participants discussed how team cognitive processes were accessed, sustained, and employed via dialogue and reflection in the formation of a team mental model or plan as the context changed, which provided theoretical insights on team learning. In effect, individual survival in the Great Bear Wilderness disaster was viewed as a social accomplishment achieved with others, where experience, dialogue, action, reflection, and reflection-in-action were different and dynamic aspects of the same process of survival in a rapidly changing environment. Importantly, the Great Bear staff ride example illustrates, as a research methodology, why and how the staff ride has unique potential for theory development and elaboration based on researchers' concurrent consideration of rich contextual information and reflection on the critical incidents of the event.

Subsequent to the professional development workshop, we conducted additional staff rides with graduate students and researchers. Importantly, we found that data derived from the first staff ride could be further elaborated on and linked to new staff rides.

Discussion

We examined the efficacy of the staff ride as a unique means for elaborating context and theory. Recognizing that variations are likely to exist in efforts to use staff rides for research purposes, this article presents general guidelines and procedures for conducting a research-oriented staff ride. In this regard, our guidelines advance qualitative research in terms of studying organizational phenomena in a holistic and reflective sense in the natural or re-created context for a historical event. While

we argue that the staff ride is an effective means for studying in extremis events and organizational behavior in challenging work contexts, we also identify limitations in the use of the staff ride. Below, we further elaborate the challenges that researchers may encounter when conducting staff rides. We also comment briefly on several lessons learned during the staff rides of the Great Bear Wilderness example.

Ideally, staff rides have the specific advantage of allowing researchers to experience actual settings together while getting closer to the subject. Rather than just reading about an incident, context is ideally experienced firsthand, including the environment and operational setting in which critical decisions were made. A strength of this approach is its concern not only with how individuals and groups create their reality but also with how they are affected by ecological processes (e.g., weather) and material landscapes and how they make sense of their circumstances. For while armchair analysts of the Mann Gulch disaster in northwestern Montana speculated on the behavior of the 13 smokejumpers who were killed, actually experiencing the steepness of the wilderness terrain and the very loose soil highlights how difficult foot travel would have been for the panicked smokejumpers (Alexander, 2002). In the ideal case, the opportunity to interact with individuals who were actually involved in the incident or who participated in the subsequent accident investigation, and at the original site, would provide greater understanding of the event.

For many phenomena of interest to organizational researchers, access to original sites and witnesses is not possible. As an alternative, we suggested a modified staff ride in which simulated material helps to re-create the event. The unique advantage of the modified staff ride is that knowledgeable experts are brought together to be involved in the topic at hand with rich contextual information, an important extension that incorporates strengths of other qualitative techniques such as focus groups, retrospective interviews, plant tours, and archival data analysis, among others. Furthermore, we argue that the modified staff ride serves the important goals of concurrently engaging experts in evidence-based discussions with data from multiple organizations and in the experience of the re-created context. At the same time, we caution researchers to make every effort to ensure that all major ecological elements (e.g., physical terrain) and processes (e.g., changes in weather) associated with the original context are incorporated into the modified staff ride (re-created context) to ensure a relatively high degree of fidelity. Not doing so could affect participants' abilities to appropriately reflect on the situated actions of the original participants.

Whiteman and Cooper (2011) discuss how after-the-fact visits to incident sites can further elaborate the role of context. Using an individual-level account of sense making in the subartic, the authors reanalyzed data from Mann Gulch to show how ecological cues demonstrate hidden vulnerabilities. Making sense of conditions in the natural environment enhances our knowledge of social outcomes such as the personal survival skills and resilience needed to overcome disaster and how learning occurs through trial and error (Whiteman & Cooper, 2011). In this sense, attention to real settings allows researchers to more completely study patterns of social phenomena (Numagami, 1998). As such, staff rides have strengths that parallel case study research (see, e.g., Kazdin, 2010; Yin, 2009). Staff rides can serve as a source of new ideas and hypotheses. Access to a situation not typically studied or one that is otherwise difficult to study can help justify a single-case design in the staff ride. Staff rides can have a clear focus and help achieve in-depth understanding of such phenomena. A staff ride can also be singular and revelatory if it provides a counterexample to beliefs about organizational phenomena or what was previously considered a universal or generalizable principle.

Staff rides can also add to the understanding of person–situation interactions when taken into consideration across multiple staff rides. Conducting multiple staff rides for the same historical event has the potential to allow researchers to look for repetition of patterns, providing further evidence of relationships between context and outcome. The latter thinking is more in line with how multiple staff rides might be considered in the meta-theory sense, akin to meta-analysis.

Along with the advantages of the use of staff rides for qualitative data generation and analysis, several methodological challenges may exist. One methodological challenge concerns incomplete or subjective data. Researchers may not be in direct control of staff ride material, making it difficult to assess objectivity. Information may have been subject to bias or distortion in reporting, and proprietary documents and archival records may have been deliberately controlled or repressed. As a result, the fidelity of the staff ride as a re-creation of an actual event may be compromised. Data may be laden with emotion if witnesses or survivors experienced trauma; reliving the event may be emotionally difficult for them. As such, data may be selective or distorted in ways unknown to the researcher; in effect, the inferences drawn from the staff ride could be subject to selection and distortion.

The accuracy and reproducibility of inferences drawn from staff ride data can be partially addressed through triangulation—the systematic collection of data evidence from several independent sources using multiple measures, methods, or levels of analysis in order to reduce bias and create a more accurate depiction of events (Cox & Hassard, 2010; Jick, 1979). For example, the Great Bear Wilderness consisted of more than 300 investigative documents, newspaper articles, and key witness accounts in a rigorous effort to triangulate data.

Imperfect recall of historical events—the recall effect—can also be addressed through several means (Golden, 1997; Miller, Cardinal, & Glick, 1997). If appropriate for the purposes of the staff ride, interviews with witnesses can be limited to simple questions about hard facts and concrete events (as opposed to abstract opinions and beliefs) because people demonstrate greater recall when incidents are deemed ''critical'' (Chell, 2004). In the Great Bear Wilderness exemplar, witness interviews were conducted using a standardized interview protocol. This point is consistent with critical incident protocols and questions designed to reduce or preclude the entry of abstract opinion or beliefs into incident descriptions. Researchers can also use multiple informants while motivating them to provide accurate information (see Fisher et al., 2000). Finally, the influence of emotionality in informant recall can be acknowledged (Golden, 1997; Miller et al., 1997).

Practical limitations involving the time and expense to develop and implement staff rides may include difficulty assembling or locating the individuals or material needed (Alexander, 2002). For although military battles are often thoroughly documented both in victory and defeat, other incidents (such as wildfires) may be documented only when lives were lost or significant property was damaged (*Wildland Fire Staff Ride Guide,* 2010). Military battles may no longer have survivors or eyewitnesses, and access to battle sites may be difficult logistically or prohibitively expensive. Modified staff rides adapted for academic conferences, classrooms, and web-based seminars provide some flexibility regarding time and expense.

The multiple modified staff rides for the Great Bear Wilderness example conducted in academic workshop settings point to the need to carefully consider the recruitment of ride participants and to ensure adequate preparatory work on behalf of ride participants. For instance, one staff ride was promoted as a special event workshop by a leading professional academic (management) association, which resulted in a select group of approximately 20 experienced researchers. In large part, these individuals were motivated ride participants who had examined the background materials for the workshop. This group size also permitted the conduct of the staff ride with the entire group for all phases of the ride. On the other hand, another staff ride was offered as an elective (among three possible workshops) to attendees at a national graduate student conference. Although ride participants self-selected into the workshop, the group size was somewhat large (approximately 40), and participants were differentially motivated and prepared for the workshop. The latter issues may have, in part, been due to the graduate student participants not having access to background materials prior to the workshop.

Notably, in both workshops, participants commented on the value of the physical terrain model and crash site photos for enhancing their understanding of how the material landscape affected

survivors' decisions and actions. In this regard, participants' self-reporting that their reflections were promoted by concurrently considering the context is consistent with the notion that reflection and experience are not dualistic, but play off each other. This point highlights the importance of paying careful attention to the recruitment of ride participants and to ensuring that participants have access to background materials and that they prepare for the ride. In addition, for modified staff rides, these workshops point to the value of a physical terrain model and other contextual information to assist participants in gaining a better understanding of the original participants' ecological sense making. Attending to these issues and lessons learned will be all the more important for modified staff rides, which may need to be conducted within workshop time limits imposed by sponsoring organizations.

Finally, depending on the purpose of the staff ride, issues of generalizability may need to be considered. Generalizability concerns trade-offs between external and internal validity. Generalizations that apply to many contexts can include only limited aspects of each local context (Lincoln & Guba, 1985). In this regard, staff rides may generalize to the theoretical propositions put forth in the research, but not necessarily to populations as in statistical research. The argument that findings from the staff ride apply only to a specific setting may limit transfer to other settings.

Issues of generalizability can be addressed in several ways (Silverman, 2005). First, the choice of staff ride can be established as being purposeful to theory. Patton (2002) describes purposive sampling, including extreme or deviant case sampling, maximum variation sampling, typical case sampling, snowball or chain sampling, and criterion sampling. Second, qualitative and quantitative measures can be combined, and the researcher can make inferences from the chosen case. Finally, the selection can be noted as being guided by time and resources (Silverman, 2005).

In closing, our discussion highlighted the foundation of staff rides as residing within several literatures including those dealing with critical incident analyses and social and experiential learning theory. As such, our discussion emphasized the value of the staff ride with regard to stimulating dialogue and public reflection among researchers concerning episodes of critical incidents associated with a historical event and, in doing so, movement toward greater understanding of organizational phenomena. Our discussion also emphasized how staff rides make unique contributions to research through the independent analysis of events outside organizations by content experts who collectively and concurrently reflect on retrospective data while experiencing context. In doing so, new findings can emerge through the open reflections and dialogues of content experts, despite confusing or conflicting data.

In proposing the staff ride, we call on researchers to take up Maclean's (1992) challenge to discover the missing parts of research:

> The story, then, is the quest to find the full story of the Mann Gulch fire, to find what of it was once known and was then scattered and buried, to discover the parts so far missing because fire science had not been able to explain the behavior of the blowup or the ''escape fire,'' and to imagine the last moments. (p. 156)

As Schön (1983) has argued, expert practitioners in an occupation are distinguished from novices by their ability to reflect on practice while dealing with particularly complex or unusual circumstances and issues. A corollary is that an instructionally oriented staff ride provides the means to cultivate the practitioner's ability to reflect on and improve practice. As we argued above, organizational scholars can promote theory development and greater understanding of organizational phenomena through social reflection while attempting to better understand unusual or complex cases in their natural or re-created settings. Given the potential of the research staff ride to promote theory development and testing, we encourage future use of this approach to qualitative data generation and analysis.

Appendix 1

Additional Sources for Staff Ride Materials and Examples

The Corps of Discovery: *Staff Ride Handbook for the Lewis and Clark Expedition*
        http://usacac.army.mil/cac2/cgsc/carl/download/csipubs/collins/collins_part_1.pdf
The Gettysburg Staff Ride
        http://www.armystrongstories.com/blogger/charles-maurer/gettysburg-staff-ride-1/
The Mann Gulch Virtual Field Trip
        http://formontana.net/gulch.html
The U.S. Army Center of Military History
        http://www.history.army.mil/srides.html
The United States Army Combined Arms Center Staff Ride Handbooks
        http://usacac.army.mil/cac2/csi/StaffRideHB.asp
The Wildland Fire Leadership Development Program
        http://www.fireleadership.gov/toolbox/staffride/main_about_staff_rides.html
        http://www.fireleadership.gov/toolbox/toolbox.html
Wharton Center for Leadership & Change Management
        http://leadership.wharton.upenn.edu/digest/1-06.shtml

Appendix 2

Modified Staff Ride Example

Suggested times are provided for a typical academic research conference or classroom staff ride. These time periods can and should be adjusted to permit adequate review of the event, presentation and discussion of the field visit, and integrative discussion of the historical event.

Preliminary Study Recap (10 minutes). Prior to the staff ride event, a website is provided for participant access to documents including a timeline of the event, summary of flight operations, team decisions, and search and rescue activities. Preliminary study information is then summarized within the initial 10 minutes of the research conference.

Field Visit (40 minutes). Using visual aids, physical terrain model, photographs, and PowerPoints, the historical event is re-created for participants. Survivor and eyewitness statements related to key episodes are highlighted in a chronological timeline. For the Great Bear Wilderness example, participants together or in separate small groups (depending on the size of the participant group for a particular staff ride) discussed the following questions:

1. How do events that unfolded during the critical period impact team decision making?
2. How does a newly formed team's transactive memory develop and how is it maintained?
3. How do individual and team regulatory processes interrelate and develop during a crisis?
4. How do different forms of dialogue enhance or inhibit learning during crisis events?
5. What are key individual, team, and organizational factors that lead to optimal and suboptimal decisions during a crisis?

Dialogue and public reflection address preliminary findings.

Integration Phase (30 minutes). Participant insights are assimilated in the integration discussion on how cognitive, interpersonal, and behavioral processes strengthen and weaken teams in crises. During this phase, staff ride leaders ask questions followed by a general debriefing. Researchers record the participant discussion using a group interview protocol. As a final component of the integration, the researchers refine theoretical arguments incorporating participants' input.

Appendix 3

Narrative of the Great Bear Wilderness Event

The event re-created is the September 20, 2004, aviation disaster in the Great Bear Wilderness, south of Glacier National Park in Montana. A single-engine Cessna transporting four U.S. Forest Service researchers from Kalispell, Montana, crashed into Mt. Liebig at 6,600 feet. Three people escaped the burning plane, while the pilot and one passenger died. The site was so devastating that authorities would later mistakenly declare that there were no survivors.

Facing a fierce wind and 20-degree temperature, the survivors built a small shelter using parts of the plane, turning pieces of the plane's red cowling to the sky to aid rescue. They could hear aircraft above, but poor weather and cloud cover hampered search and rescue efforts. The three were seriously injured. All supplies were destroyed in the fire, including GPS, cell phones, blankets, food, and water. Over the course of the night, they huddled together to keep warm. Despite this effort, the chief of party died early the next morning.

The two young survivors then decided to hike out. They made a steep descent which took several hours, resting in an open clearing directly visible below the crash site. They spent a second night in the mountains and a third day hiking, reaching Montana Highway 2 on the afternoon of Wednesday, September 23. The 911 rescue transcripts reveal the disbelief of authorities that the two were indeed legitimate survivors of the plane crash.

Several organizational failures impacted the rescue. An eyewitness provided a map of the plane's location to federal authorities, but when the map was not shared with state and local agencies, search efforts were concentrated in the wrong location. When the plane wreckage was located, inspection of the crash site lasted only eleven minutes with authorities declaring that all five aboard had perished. When two survivors walked out of the wilderness of their own accord, the public outcry over the organizational mistakes that occurred was international.

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