

1-30-2017

A Grounded Theoretical Analysis of Team Resilience in the US Army

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A Grounded Theoretical Analysis of Team Resilience in the U.S. Army

Megan L. Dove-Steinkamp, Ph.D.

University of Connecticut, 2017

In order to develop a scientific understanding of team resilience, the three primary goals of the current research effort were to (1) summarize the research literature on resilience in and of small groups and systems, (2) articulate a framework to direct the synthesis of existing and future resilience-related research, and (3) construct a substantive theory of team resilience. This exploratory research used a grounded theory approach to explore resilience phenomena experienced by small unit members in the US Army. Participants were sampled from military occupational specialties within Combat Arms, as classified by the US Army Regimental System, and included members of small units from Air Defense Artillery, Armor, Aviation, Field Artillery, and Infantry. Herein, *team* is used to refer to a bounded group of US Army Soldiers working together toward a shared functional goal (e.g., tasking, mission). Review of the cross-disciplinary literature on resilience in and of teams suggested multiple, plausible and sometimes competing conceptualizations of team resilience. The resulting Team Resilience Framework that was developed as part of this study identifies five key components that can be used to clarify and organize varied conceptualizations of team resilience: 1) who (*of whom*), 2) what (*to what*), 3) why (*for what*), 4) when (*at what time*), and 5) where (*under what circumstances*). The Team Resilience Framework was applied in this study and resulted in a rich description of the context in which team resilience occurs. Qualitative analysis of interview and focus group transcripts indicate that team resilience is an iterative process of managing disruptor cues, disruptors, and disruptions which includes five primary action phases: specification, mobilization, detection, determination (adjustment,

Megan L. Dove-Steinkamp, Ph.D. – University of Connecticut, 2017

as necessary); and reset. Important elements and influential factors are associated with each phase of the process. Study findings from this foundational research contribute to an enriched understanding of team resilience generally, and also can be used more specifically to articulate an operationalization of small unit (team) resilience that best suits the needs of the US Army. Other practical applications and implications for future research are also discussed.

A Grounded Theoretical Analysis of Team Resilience in the U.S. Army

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at the

University of Connecticut

2017

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2017

ii

APPROVAL PAGE

Doctor of Philosophy Dissertation

A Grounded Theoretical Analysis of Team Resilience in the U.S. Army

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2017

Dedicated to the men and women who serve in the US Armed Forces.

ACKNOWLEDGEMENTS

I would like to thank my advisor, Dr. Robert Henning, and committee members, Dr. Janet Barnes-Farrell and Dr. Nancy Naples, for their continued insight, guidance, and support. In addition, I am grateful for the opportunities, encouragement, and critical feedback offered by researchers affiliated with the US Army Research Institute for Behavioral and Social Sciences and the Consortium of Universities of Metropolitan DC Area, including Dr. Gerald Goodwin, Dr. Jessica Gallus, Dr. Richard Hoffman, Dr. Jenna Newman, Dr. Miliiani Jimenez, Dr. Jessica Darrow, Dr. Jackie Eller, Dr. Robert Greene Sands, Melissa Gouge, and Katherine Rahill. Finally, I would like to extend my sincere appreciation to the members of the US Army who volunteered their time to meet with me and to share their experiences.

This research was supported by the US Army Research Institute for the Behavioral and Social Sciences under contract W5J9CQ-11-C-0040 with the Consortium of Universities of Metropolitan DC Area. The views contained herein represent those of the author and do not represent the positions, policies, or opinions of the US Army Research Institute, Department of the Army, or the US Government.

TABLE OF CONTENTS

| | |
|---|-----|
| Introduction..... | 1 |
| Cross-Discipline Critique of Resilience | 2 |
| Framework for Conceptualizing Team Resilience..... | 26 |
| Team Resilience in the U.S. Army..... | 46 |
| Research Questions | 51 |
| Method | 52 |
| Results..... | 65 |
| Application of the Expanded Team Resilience Framework | 66 |
| Team Resilience as a Process of Managing Disruption | 111 |
| Relationship between Team Resilience and Psychological Resilience | 139 |
| Discussion | 145 |
| References | 160 |
| APPENDIX A: Illustration of Grounded Theory Approach | 175 |
| APPENDIX B: Interview Protocol..... | 176 |
| APPENDIX C: Informed Consent | 189 |
| APPENDIX D: Privacy Act Statement | 193 |
| APPENDIX E: Participant Information Sheet | 194 |

LIST OF TABLES

| | |
|--|----|
| Table 1: <i>Representative Definitions of Resilience</i> | 8 |
| Table 2: <i>Overview of Primary Small Units Sampled</i> | 68 |
| Table 3: <i>Example Disruptors as a Function of Category</i> | 69 |

LIST OF FIGURES

| | |
|---|-----|
| <i>Figure 1:</i> Number of publications featuring "resilience" in title as a function of time and discipline | 3 |
| <i>Figure 2:</i> Illustrations of idealized potential resilience trajectories | 14 |
| <i>Figure 3:</i> Illustration of the expanded Team Resilience Heuristic Approach..... | 36 |
| <i>Figure 4:</i> An example of open-coding using an excerpt from an interview | 62 |
| <i>Figure 5:</i> Exemplary illustration of simultaneous small group membership..... | 71 |
| <i>Figure 6:</i> Key components in current application of Expanded Team Resilience Framework | 99 |
| <i>Figure 7:</i> Illustration of the primary phases, elements, and examples of influential factors associated with the team resilience process..... | 139 |

A Grounded Theoretical Analysis of Team Resilience in the U.S. Army

Organizations increasingly rely on team work arrangements to facilitate strategic objectives and manage operational demands (Cooke, Salas, Cannon-Bowers, & Stout, 2000). In dynamic, complex organizational environments, work teams can sometimes be exposed to rapid and/or unpredictable change (Kozlowski, Gully, Brown, Salas, Smith, & Nason, 2001). Unpredictable fluctuations in demands or resources can disrupt and threaten the function of work teams even in systems designed to support flexible responses to change (Meneghal, Salanova, & Martinez, 2014). Achievement of desirable team outcomes (e.g., performance, viability, team member satisfaction) under such conditions can depend upon shifts in team processes (Welsh, 2014). Thus, the design of the modern workplace requires a sophisticated understanding of teamwork in the face of disruptions (Stephens, Heaphy, Carmeli, Spreitzer, & Dutton, 2013).

General responses to disruption by humans and human systems can be examined using a resilience perspective (Lundberg & Rankin, 2014). In fact, resilience perspectives are becoming very common and have been applied in fields as diverse as psychology, ecology, human factors, business, education, military, sports, and economics. Resilience perspectives afford a shift in focus from what *could* go wrong to how entities/systems respond when something *does* go wrong (Dalziell & McManus, 2004). Because it is not always possible to design systems to be impervious to disruptions – especially for types of disruptions that cannot be predicted – resilience perspectives often emphasize the development/strengthening of new and existing adaptive capacities (resources, strategies), and this development/strengthening is purported to increase the likelihood of positive outcomes for stakeholders (Burnard &

Bhamra, 2011). Those systems that are better able to withstand, recover from, and/or improve upon themselves in response to disruptions are generally viewed as *resilient* (Welsh, 2014).

Given the mounting support for collective resilience phenomena among other bounded groups (e.g., family resilience), as well as the identification of team-level analogs of other related psychological constructs (e.g., efficacy), teams may also have the potential to engender a particular type of collective resilience. To date, however, there has been little scholarly attention afforded to developing a scientific understanding of team resilience. Therefore, the purpose of the current research effort is to: (1) summarize the research literature on resilience in and of small groups and systems, (2) articulate a framework to direct the synthesis of existing and future resilience-related research, and (3) construct a substantive theory of team resilience. These foundational efforts are suggested here to be critical for the development of a comprehensive theory of team resilience.

Cross-Discipline Review of Resilience

Resilience perspectives have become ubiquitous, increasingly appearing in both academic and nonacademic discourses. To demonstrate the proliferation of the term “resilience”, a keyword search of the designated online databases was conducted for five year increments spanning 1970 to 2014. Figure 1 illustrates the marked increase in scholarly interest across a diverse set of disciplines since the mid-1990s. This trend is commensurate with observed frequencies for online searches, using Google, featuring the term “resilience” (Google, 2013, as cited in Robertson & Cooper, 2013). Robertson and Cooper (2013) report that the frequency of searches using the term “resilience” increased

nearly twofold between the years 2005 and 2014. A set of simple Google keyword searches were conducted to ascertain the popularity of the term “resilience” relative to other related terms. As of May 31, 2015 the term “resilience” (without additional derivatives) returned 36,600,000 hits; nearly as many as “complex systems” (46,800,000), “coping” (47,300,000), “vulnerability” (51,000,000), and with more hits than “adaptability” (13,400,000). Despite growing attention to and application across academic disciplines and in general discourse, there is surprisingly little agreement with respect to what resilience actually is (Anderson, 2015).

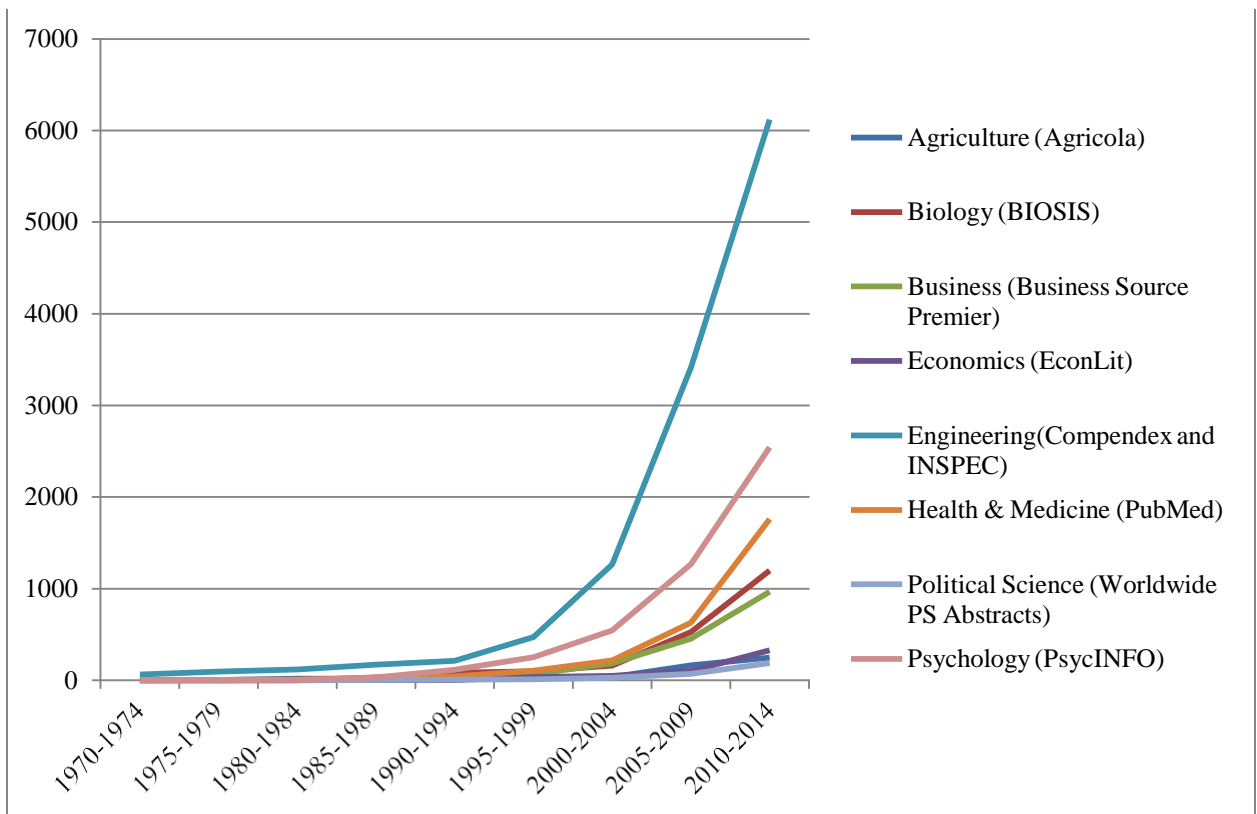


Figure 1. Number of publications featuring "resilience" in title as a function of time and discipline

A literature search was conducted using combinations of relevant keywords (e.g., group (work)/team (work), resilience/resistance/recovery/growth) via online databases (e.g., EBSCOhost), as well as through cross-referencing of exemplar sources. Sources were drawn from a diverse array of disciplines, including psychology, ecology, human factors, organizational science, geography, public health and public policy; and emphasized reviews of collective resilience (e.g., family, socio-ecological, organizational)¹. Every effort was made to use as representative a sample of the relevant literature as possible for the cross-discipline review.

The concept of resilience originated in physics and mathematics to describe how specific materials behave under stress. Some materials bend rather than break under applied pressure/force and, upon cessation of said force, return to their previous form. The speed (efficiency) with which a material returns to its previous state is characterized in terms of its *resilience* (Dalziell & McManus, 2004) and the capacity for the material to return to a previous state is characterized in terms of its *stability* (Holling, 1973). From this perspective, both resilience and stability are properties of materials that afford description and classification of material responses when perturbed from a state of equilibrium. This perspective assumes that resilient, stable systems can be engineered once designs are based on a thorough risk analysis and all probable vulnerabilities are either compensated for or are eliminated (Sheridan, 2008).

The term resilience was adopted by other disciplines in the late twentieth century, initially receiving heightened interest in the fields of ecology and psychology (Kulig, Edge, Townsend, Lightfoot, & Reimer, 2013). For example, Holling (1973) observed

¹ The results of this literature search identified only fifteen publications explicitly focused on the construct *team resilience*. This literature will be discussed in detail in a later section.

that while some ecological systems (i.e., organisms and their environments) return to a previous state of equilibrium following a disruption or perturbation, others do not. Of particular interest were the systems that, once perturbed, remained *intact* in terms of function, structure, and feedback loops ... yet were somehow *changed* (Welsh, 2014). According to the engineering perspective, physical systems that do not return to the pre-disruption equilibrium state are unstable and are likely to fail eventually. Yet, Holling (1973) observed ecological systems that were thriving despite having shifted to an altered state following perturbation. Holling reasoned that ecological systems may have more than one stable state, and that stability (and thus also resilience) is not dependent upon the maintenance of a single state of equilibrium. Holling's observations stimulated a marked change in how resilience was conceptualized in ecology, and this has differentiated the conceptualization of ecological resilience from that of mathematics and physics (Cretney, 2014).

Psychological resilience was born from concurrent endeavors to understand variability in recovery from childhood trauma (Bonanno, Westphal, & Mancini, 2010); some victims of childhood trauma developed into functional adults while others (seemingly) did not (Reid & Botterill, 2013). Psychologists surmised that there was something special about the individual that allowed him or her to continue to function despite adversity, and initial research efforts were focused on the identification of protective/promotive traits. As the study of psychological resilience matured, and longitudinal analyses were incorporated, psychologists developed a greater appreciation for the influence of situational factors on individual outcomes (Saltzman, Lester, Beardslee, Layne, Woodward, & Nash, 2011). Recently, psychologists have warmed to a

systems approach to the study of resilience that accounts for complex interactions among endogenous and exogenous factors over time (Cicchetti, 2013). Whether conceptualized as an outcome, trait, or process, psychological resilience is traditionally associated with exposure to (at least potentially) traumatic events (Bonnano et al., 2010).

Recently, there has been an increased interest in understanding resilience at other levels of analysis (Masten & Monn, 2015). For example, an ecological perspective was adapted by Adger (2000) to describe how social-ecological systems collectively manage disruptions. In the socio-ecological perspective, social and ecological systems are interdependent, their processes and outcomes directly affected – for better or for worse – by one another (Cretney, 2014). Other fields have adopted a specific focus on the resilience of human systems; for example, there are growing literatures pertaining to family resilience (e.g., Walsh, 2013), community resilience (e.g., Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008), and organizational resilience (e.g., Bhamra, Dani, & Burnard, 2011).

Definitions of Resilience across Disciplines

Resilience has been examined in a wide range of contexts, both academic and nonacademic. As Bene, Wood, Newsham, and Davies (2012) have suggested, the popularity of the resilience construct can be attributed, at least in part, to “the fact that people, irrespective of their backgrounds and experience, are able to sit down and work together based on the intuitive and loose meaning of resilience” (p.45). Often, resilience is presented in discussion without clarification/explanation, with contributors assuming a shared understanding of the term. However, a critical review of the literature reveals nontrivial differences in how resilience is conceptualized across – and even within –

disciplines (Bolzan & Fran, 2012). Table 1 presents representative definitions of resilience that vary widely. The inconsistencies and contradictions in the conceptualization of resilience both across and within disciplines jeopardize the synthesis of the literature and the utility of resilience perspectives (Meredith, Sherbourne, Gailott, Hansell, Ritschard et al., 2011).

Most conceptualizations of resilience are related to the management of disruption so as to maintain, regain, and/or improve the function of a system (Welsh, 2014). Resilience can be loosely conceptualized as being: “(i) of something, (ii) to something, (iii) to an endpoint” (Allmark, Bhanbro, & Chrisp, 2014, p.62). For example, an ecologist might conceptualize resilience as having to do with (i) an ecological system (ii) to a drought (iii) to harvest yield; whereas a psychologist might conceptualize resilience as having to do with (i) an individual (ii) to trauma (iii) to psychological health. Each discipline focuses on a specific level of analysis (e.g., ecosystem is to ecology as individual is to psychology). Despite a general emphasis on an entity’s response to a disruption, resilience is alternately conceptualized as a set of relatively stable protective attributes (i.e., trait), an outcome (i.e., emergent state), or a trajectory of response (i.e., process). More detailed treatments of these and other inconsistencies identified in the resilience literature are provided in subsequent sections of this paper.

Table 1. *Representative definitions of resilience*

| Author(s) | Level of analysis | Definition |
|---------------------------|-------------------|---|
| Bonanno et al. (2010) | Individual | An outcome pattern following a potentially traumatic event characterized by a stable trajectory of healthy psychological and physical functioning |
| Luthar & Cicchetti (2000) | Individual | A dynamic process wherein individuals display positive adaptation despite experiences of significant adversity or trauma |
| Rutter (2006) | Individual | Reduced vulnerability to environmental risk experiences, the overcoming of a stress or adversity, or a relatively good outcome despite risk experiences |
| Masten & Monn (2015) | Family | The capacity of a dynamic system to adapt successfully to disruptions that threaten its function, viability, or development |
| Patterson (2002) | Family | The processes by which families are able to adapt and function competently following exposure to significant adversity or crises |
| Walsh (2013) | Family | The ability of families to withstand and rebound from disruptive life challenges, strengthened and more resourceful |
| Furniss et al. (2011) | Team | Ability to recover from some unexpected event, or to avoid accidents happening despite the persistence of poor circumstances |
| Morgan et al. (2013) | Team | A dynamic, psychosocial process which protects a group of individuals from the potential negative effect of the stressors they collectively encounter |
| Allmark et al. (2014) | Community | The internal quality i) of something ii) to return to a state iii) in the face of external challenge or adversity |
| Norris et al. (2008) | Community | A process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disruption |

| | | |
|----------------------|-------------------------|--|
| Bhamra et al. (2011) | Organization | Capability and ability of an element to return to a stable state after a disruption |
| Holling (1973) | Ecosystem | The amount of disruption that an ecosystem could withstand without changing self-organized processes and structures |
| Rankin et al. (2014) | Socio-technical system | The ability to sustain required operations in both expected and unexpected conditions |
| Ungar (2013) | Socio-ecological system | Capacity of both individuals and their environments to interact in ways that optimize developmental processes |
| Walker et al. (2004) | Socio-ecological system | The capacity of a system to absorb disruption and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks |

Criterion for Demonstrating Resilience

Established criteria for determining when resilience occurs remain elusive. Some authors have conceptualized resilience as an ability (e.g., Rankin, Lundberg, Woltjer, Rollenhagen, & Hollnagel, 2014) or a quality (e.g., Allmark et al., 2014) of a system. These conceptualizations treat resilience as a trait characteristic of a system or a set of relatively stable system attributes. Other researchers have suggested that resilience is an emergent state, an outcome – although temporary in its own rite (e.g., Holling, 1973). Still others have conceptualized resilience as a process representing the way a system responds to disruption in terms of some predetermined outcome of interest (e.g., Patterson, 2002). Although Allmark et al.’s (2014) heuristic is useful, it lacks an explanation for how the relationship between a disruption (e.g., drought, trauma) and an outcome (e.g., harvest yield, psychological health) is to be considered at the specific focal level of interest (e.g., ecological system, individual). Coupled with ambiguity as to

whether resilience is a trait, an emergent state, or a dynamic process, it remains unclear how researchers, practitioners, and other stakeholders could ever agree that resilience has occurred.

These same inconsistencies can be found with respect to a particular level of analysis. For example, community resilience is sometimes conceptualized as a trait (e.g., Allmark et al., 2014) and other times as a process (e.g., Norris et al., 2008). If resilience is conceptualized as a process, it is unclear whether it is evidenced through resistance (e.g., Rankin et al., 2014), recovery (e.g., Bharna, Dani, & Burnard, 2011), or some other response trajectory (e.g., reorganization; Walker, Holling, Carpenter, & Kinzig, 2004). The criteria by which resilience is identified has important implications for how this construct can be understood and applied in specific contexts, and so the relative advantages of conceptualizing resilience as a trait, an emergent state, or a dynamic process are worth considering in more detail.

Resilience Conceptualized as a Trait or Global Property

A trait is a relatively enduring characteristic of an entity (Conger & Conger, 2002). Trait conceptualizations of resilience are traditionally utilized by psychologists and engineers. For example, a resilient individual is credited with an ability to successfully manage disruptions through personal initiative and agency (Walsh, 1996); a resilient system is engineered so as to minimize or eliminate vulnerabilities. According to trait/global property conceptualizations, a resilient individual or system would be expected to function more consistently than a less resilient counterpart despite exposure to potential disruption.

Conceptualizations of resilience as a trait/global property have implications for practice. A trait or global property is, according to most conceptualizations, not malleable. In an applied setting, such as a work context, to the extent trait resilience can be reliably associated with important outcomes; resilience might be used as a foundation for the construction of selection procedures and assessment of fit (e.g., person-job, person-team, person-organization).

When human beings are the focal level of analysis, the conceptualization of resilience as a trait may inadvertently promote victim-blaming: Because resilient individuals are believed to have the capacity to willfully confront and skillfully manage disruptions without assistance from external supports, faltering may be attributed to personal flaws (Luthar et al., 2000). Critics of conceptualizations of resilience as trait draw attention to the frank possibility that an emphasis on traits and personal agency could potentially limit recognition of vulnerable individuals. Holding vulnerable individuals responsible for lacking a resilience trait could affect the allocation of needed resources and support that could otherwise promote positive outcomes for these individuals. Some researchers (e.g., Masten & Monn, 2015) have argued that certain individual differences (e.g., self-esteem, optimism, positive affect) may simply make resilience more likely – giving the illusion that resilience is, itself, a trait.

Resilience Conceptualized as an Emergent State

Traits and global properties are differentiated from states as a function of relative permanency, whereby states exist for a shorter period of time (Hamaker, Nesselrode, & Molenaar, 2007). Drawing on Holling's (1973) seminal work, ecologists and other

systems scholars have generally embraced state conceptualizations of resilience. From this perspective, resilience is something that an individual or a system momentarily is.

According to multi-level theory, emergent states manifest as a consequence of some particular process or set of processes that can be classified as either compositional or configural (Kozlowski & Klein, 2000). Compositional phenomena represent shared properties of system components and are usually represented as the sum or average of individual component inputs. Climate is an oft-cited example of a compositional group phenomenon, because climate exists only to the degree that individual members of the group agree that it exists. Not only are individual perceptions relevant, but the sharedness of those perceptions results in the compositional emergent phenomenon. Configural phenomena, on the other hand, do not represent shared properties of system components, but rather disparity in or a particular pattern of individual components' inputs has meaning at the system level. Group performance can be an example of a configural group phenomenon. When group members are expected to perform very different, but interdependent tasks, the performance of the group will look very different than the performance of any single group member. Compositional and configural conceptualizations of resilience as an emergent state can result in nontrivial differences in relative relationships with unit-level antecedents, outcomes, and cross-level effects. Thus, conceptualizations of resilience as an emergent state would necessarily require an explanation for how the state is believed to come about (e.g., whether the state emerges through compositional or configural processes).

Conceptualizations of resilience as an emergent state have implications for practice. Unlike a trait or global property, states are subject to change and so, under the

right conditions, entities and systems can be moved from one state to another.

Understanding the conditions that influence state change can provide, in a work setting, a foundation for designing interventions and training. State conceptualizations of resilience may also be more forgiving of individuals and systems that falter.

Resilience Conceptualized as a Process

While both trait and state conceptualizations of resilience treat resilience as something that an entity – at least momentarily – *is* (Sheridan, 2008), a growing number of scholars across a variety of disciplines, including psychology, endorse conceptualizations of resilience as something a system *does* (e.g., Klarreich, 1998; Patterson, 2002). From this perspective, resilience is a pattern of responses that unfold over time. For example, Norris et al. (2008) defined resilience as “a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disruption” (p.130). To date, there is no consensus on what the process of resilience actually looks like.

In many studies, resilience has been inferred by observing changes in some outcome of interest over time. Several resilience trajectories have been proposed (Bonanno et al., 2010; Norris et al., 2009), including resistance, recovery, renewal, and growth. Figure 2 shows a set of idealized response trajectories associated with resilience processes in the scientific literature. Time is represented along the x-axis and includes the period before the onset of a disruption (Pre-D), the onset disruption (D), as well as the timing of multiple measurements/observations following the onset of the disruption (M1, M2, M3). The level of dysfunction is plotted on the y-axis. The colored lines represent various response trajectories associated with disruption (e.g., resistance, recovery). Some

scholars strongly advocate for a single trajectory of resilience while others argue the possibility that resilience is actually a set of trajectories.

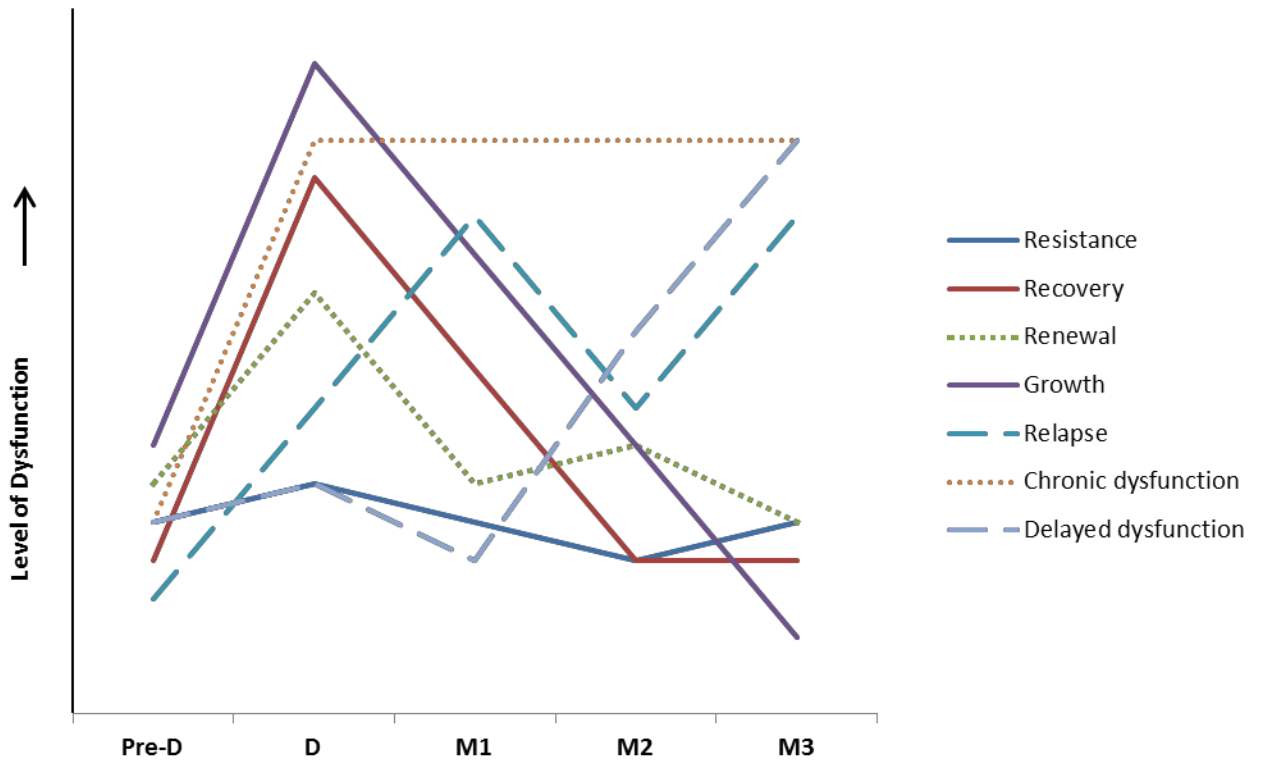


Figure 2. Illustrations of idealized potential resilience trajectories

Resistance. This trajectory is associated with persistent function despite exposure to a disruption (Masten & Wright, 2010). Consider an individual performing a work-related task who is exposed to a disruption. Resistance would be indicated by the individual’s uninterrupted work performance (Bonanno et al., 2010) – although resistance trajectories may include very slight deviations from time to time due to natural variability in human (or system) behavior. When resilience is interpreted as resistance, then resilience is an absolute: either one is or one is not resilient with respect to a specific disruption at a particular time. Resilience conceptualized as resistance is practically

synonymous with the engineering concept of stability. Indeed, Norris et al. (2009) suggest that resistance is the “hypothetical ideal” with respect to exposure – because it is like having immunity to disruption, whereby the status quo remains unaffected².

Recovery. This trajectory, sometimes referred to as *transient dysfunction* (e.g., Norris et al., 2008), is associated with a return to baseline function following some lapse in function (Sudmeier-Rieux, 2014). Traditionally, both engineers and psychologists have emphasized recovery when conceptualizing resilience. In engineering, the timeliness of return is important – the efficiency with which a material returns to steady state is indicative of resilience (Dalziell & McManus, 2004). If resilience is a function of efficiency of return to baseline levels of pre-disruption functioning, then entities may rebound more or less quickly than one another and resilience may be classified along a continuum.

Some researchers have specified an ideal recovery period and do not accept eventual recovery as a sufficient criterion of resilience (e.g., Tierney, 2003). Bonanno (2008) differentiates resilience from recovery, suggesting that psychological resilience is represented by timely return (e.g., weeks), and that recovery takes longer (e.g., months). Norris, Tracy, and Galea (2009) concur with time-dependent differentiation of recovery and resilience trajectories. Masten & Wright (2010), however, see recovery as dependent on severity of exposure, whereby duration or repetition over time could make for longer recovery period; and conceptualize recovery as a specific trajectory subsumed by the more encompassing resilience phenomenon.

² This view is not uncontested.

Resilience conceptualized as recovery has received much criticism, mostly among ecologists, concerning the nature to what the entity is supposedly returning. Dalziell and McManus (2004) argue that returning to the condition that exposed the entity to disruption in the first place is problematic, as it may set the individual or system up for repeat exposure. Folke (2006) argues that recovery, in the sense that it is a return to things as they were, is not really possible except for by linear systems – because nonlinear systems are constantly changing and evolving. Ecologists are increasingly moving away from conceptualizations of resilience that focus on recovery, preferring instead to operationalize resilience as reorganization and renewal.

Renewal. Resilience conceptualized as renewal embraces change to a qualitatively different state. Rather than persisting under exposure (resistance) or returning to baseline (recovery), resilience may be considered a trajectory towards a “new normal” (Norris et al., 2008). Norris et al. (2008) observe that behavior pre- and post-disruption conditions may be very different from one another. Scholars are split as to whether this form of change is desirable. Some scholars suggest that the transformed state is better, because it can leave the entity “strengthened and more resourceful” (Masten & Wright, 2010; Vogus & Sutcliff, 2007). Other scholars argue that the altered state is simply different (Folke, 2006; Norris et al., 2008). In addition, some critics have argued that resilience conceptualized as renewal could harm the system, particularly in instances where the change is not for the better (e.g., Gallopin, 2006). Still others have not included renewal in their set of trajectories (e.g., Bonanno et al., 2010), arguing that a fundamental change calls into question whether the focal entity is still the same entity.

Growth. This trajectory represents resilience as positive change following experience of a disruption and could be considered a type of transformation. In human systems, growth is associated with meaning making, sense making, and learning as a result of disruption (Tedeschi & McNally, 2011). Like ecology, psychology has been moving toward models of resilience that account for change (McGreary, 2011) – although unlike ecology, psychologists are focused only on positive change (Masten & Wright, 2010). Some researchers have distinguished recovery from growth by observing that recovery implies *bouncing back*, while growth implies *bouncing forward* (Sudmeier-Rieux, 2014).

Accommodating the potential for renewal (and growth) changes the original meaning of the term resilience. While some researchers see this as augmenting the resilience concept (Folke, 2006), there is debate as to whether renewal should be subsumed under the resilience umbrella (Levine et al., 2009). Indeed, Tedeschi & McNally (2011) differentiate resilience from growth as two separate trajectories, and suggest that it may be less likely for resilient individuals to experience growth because resilient individuals are less likely to have to struggle with negative effects of disruptions. From this perspective, resilience trajectories are less likely to reflect a demonstrable or lengthy dip in function. However, these authors speculate that individuals who experience growth may then become more resilient to future disruptions. Some scholars argue that growth is superior to resilience (Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2009), while others consider that growth serves a more palliative than constructive purpose (Tedeschi & McNally, 2011).

Concluding remarks about resilience trajectories. Conceptualizing resilience as a process has implications for practice. Resilience as a process implies capacity for change. If, in a work context, the sequence and nature of the process of resilience can be reliably identified and observed, then it may be possible to identify periods of vulnerability that place the process at some risk of failing. It would then be possible to design interventions that can support appropriate change and/or better guide the resilience trajectory to reduce this risk. In addition, a proactive training approach could be adopted to build individuals' adaptive capacities so that they are better prepared to manage their trajectory when exposed to potential disruptions. The value in conceptualizing resilience as a particular trajectory is that it offers some specific ways to intervene that are likely to have significant impact on particular state and goal outcomes of interest.

Scholars disagree as to whether resilience is accurately described as a single response trajectory, or as a group of trajectories. Often conceptualizations – either implicitly or explicitly –allow for multiple resilience trajectories. In particular, resistance and recovery trajectories are frequently combined in current definitions of resilience (e.g., Masten & Wright, 2010). Examples include, “preservation and/or recovery of pre-morbid functioning after exposure” (McGreary, 2011) and “ability to resist, cope with, recover from, and succeed” (Montpetit, Bergeman, Deboeck, Tiberio, & Boker, 2010, p.631). The argument for or against subsuming multiple trajectories under the common label “resilience” is to some degree related to whether or not the trajectories have similar effects with respect to a specified outcome or set of outcomes. If resilience, for example, is defined as recovery (and not resistance or growth) then resilience is bounded and cannot include trajectories related to resistance or growth. If, however, resilience is

refers to management of change, then that could subsume all other trajectories.

Researchers disagree as to which approach is most parsimonious, defining resilience as one specific trajectory (McGeary, 2011) or, rather, as a phenomenon with multiple distinguishable trajectories – perhaps none of which are labeled “resilience” in and of themselves (Luthar et al., 2000).

Specificity of Resilience

It remains unclear whether resilience is a general phenomenon or is domain-specific (Scholz, Blumer, & Brand, 2012). Ungar (2013) remarks that “resilience looks the same and different within and between populations, with mechanisms to predict positive growth sensitive to individual, contextual, and cultural variation” (p.XX).

Indeed, it has been suggested that an individual or system may “develop resilience to threat A and B but not to threat C” (Orbist, Pfeffer, & Henley, 2010, p.290). To the extent that resilience is a function of adaptive capacity, resilience in one domain may tax limited resources and lead to a loss of resilience in another domain (Furniss et al., 2011; Walker, Gunderson, Kinzig, Folke, Carpenter, & Schulta, 2006). In addition, there may be spillover from one domain to another. Masten & Wright (2010) suggest that competence begets competence. Resilience in one domain may buffer the potential impact of disruptions in other domains (Ungar, 2013). Perceived similarity across domains may contribute to the appearance of a general phenomenon of resilience when, in fact, this may not be the case.

If resilience is domain-, event-, context-, or outcome-specific, then it is difficult to know if and when results can be synthesized across studies and applications. Earlier, it was noted that the value and relationship between adaptive capacities, vulnerabilities, and

resilience is not absolute. Therefore, specific contexts may yield or require very different relationships among these. Rutter (2012) warns against assuming relationships based on theoretical presumptions rather than empirical observations. These relationships, rather, should be systematically explored over time across a variety of populations and contexts (Bonanno, 2004). For example, much of the psychological resilience literature has focused on young people. It is not clear whether this knowledge extends to adults (Vanhove, Herian, Perez, Harms, & Lester, 2015).

Concluding Remarks about Criterion

Trait/global property, emergent state, and process conceptualizations approach resilience in different ways. Sudemeier-Rieux (2014) and others (e.g., Wilson, 2014) argue that resilience is most likely both an outcome (emergent state) and a process. If there are multiple resiliencies – whether trait, state and process or multiple patterns of response to disruption – then the study of resilience runs the risk of lacking sufficient specificity for scientific clarity, resulting in inconsistencies, knowledge gaps, and lack of synthesis within and across conceptualizations (Anderson, 2015). Further, having multiple resiliencies could result in a lack of faith in the construct and an inability to inform current and future policies and interventions (Walsh, 2013).

Disruption

Resilience is loosely conceptualized as “(i) of something, (ii) to something, (iii) to an endpoint” (Allmark et al., 2014, p.62). Thus, resilience requires an entity to be exposed to “something”. Scanning the definitions in Table 1, one can see a broad array of terms used to refer to these stimuli, including “challenge” (Allmark et al., 2014), “crisis” (Patterson, 2002), “potentially traumatic event” (Bonanno et al., 2010), and

“disruption” (e.g., Walker et al., 2004). The definitions of resilience also vary with respect to whether an entity must simply be exposed to a potential disruption (e.g., Bonanno et al., 2010) or actually experience a disruption (e.g., Luthar & Cicchetti, 2000). Inconsistent terminology has both intentional and unintentional implications.

Disruptors may be conceptualized as a function of their frequency, duration, or magnitude (Sarafino & Smith, 2014). In general, more frequent, long-lasting, and high impact exposures are assumed to result in greater disruption to system performance (Bonanno et al., 2010). These exposures are also likely to become more salient to individuals or systems. This observation has prompted many resilience scholars to focus on system response to extreme threats, such as trauma (Patterson, 2002). However, the accumulation of lesser exposures –which occur less frequently, for shorter periods, or have less of an impact – can result in measurable disruption to system performance, which can be commensurate with that of more frequent, long-lasting, or high impact counterparts (Vogus & Sutcliffe, 2007). Everyday disruptions may slowly overwhelm a system and affect function (Walsh, 2013).

According to some perspectives, stimuli must necessarily be perceived as negative in order to affect resilience. In stress appraisal theory, however, there is opportunity to view stressors as challenges, presumably positive events that nonetheless disrupt behavior (Lazarus & Folkman, 1984; Fletcher & Sarkar, 2013). Negative and positive events can co-occur or have reciprocal effects, which can affect meaningful assignment of valence. Luthar et al. (2000) underscore the need for researchers and practitioners to carefully articulate the nature of relevant events when conceptualizing resilience. To the extent that daily hassles and, perhaps, positive events have the

potential to disrupt system function, then efforts to understand and conceptualize resilience should necessarily consider a range of events – at least until a resolution is reached. Indeed, different stimuli may require different management strategies and responses (Vurgin et al., 2011).

Outcomes Associated with Resilience

Although resilience is sometimes conceptualized as an outcome in and of itself (e.g., an emergent state), trait/global property and process conceptualizations of resilience can emphasize different outcomes, including, “healthy levels of physical and psychological functioning” (Bonanno et al., 2010, p.5), positive adjustment (Vogus & Sutcliffe, 2007), well-being (Bolzan & Fran, 2012), and/or competence (Morgan, Fletcher, & Sarkar, 2013). The criterion cutoff for inferring resilience may depend on context and/or the specific nature of exposure. For example, “the optimal outcome indicators are those that are conceptually most relevant to the risk encountered, so that when there are serious life adversities such as exposure to war, the absence of psychiatric distress can be more logical outcome than excellence in functioning at school” (Luthar & Cicchetti, 2000, p.858). While most conceptualizations of resilience focus on positive outcomes, that which is deemed positive is relative to the level of risk for what could have otherwise occurred. Thus, *superior* performance need not always be a prerequisite for inferring resilience.

To define the outcome of interest, one must necessarily make some judgment about appropriate behavior (Rigsby, 1994). When resilience is considered in terms of complex systems, there may be no one way to be resilient. In fact, an entity may appear to manage a disruption in unusual or even self-defeating ways (Bonanno, 2008). This

discrepancy is observed in Bottrell's (2009) study of marginalized youth, in which educators and administrators perceived student truancy and misbehavior as a lack of resilience while students understood their own behaviors as "opportunities to express competence ... Judged according to the girls' logics, their school resistances and truancy may thus be read as acts of resilience" (p.329). Indeed, outcomes may be assessed differently by different stakeholders – how an individual actor perceives his or her performance may be different than how an observer perceives his or her performance (Dalziell & Mcmanus, 2004; Gordon & Song, 1994). Subjectivity and social norms dictate conceptualizations of appropriate behavior; criteria by which meaningful outcomes are identified and evaluated are socially constructed (Walsh, 1996). This raises concern that those with more status/power/influence may advance the criteria used, set the outcomes and thus "alternate pathways" to resilience may go unrecognized or can be stigmatized (Bottrell, 2009).

Contextual Factors Associated with Resilience

The resilience literature has begun to identify contextual factors, sometimes differentiated as protective/promotive or risks/vulnerabilities, which affect the management of disruption. Protective and promotive factors modify an effect in a positive direction (Luthar et al., 2000); protective factors serve to buffer the exposure to, experience of, and effect of events, and promotive factors provide a positive boost in how an event is handled (Fetcher & Sarkar, 2013). Collectively, protective and promotive factors are sometimes referred to as adaptive capacities, emphasizing their contribution to an entity's overall potential to successfully avoid or manage disruption (Dalziell & McManus, 2004). Risks and vulnerabilities, on the other hand, modify an effect in a

negative direction (Luthar et al., 2000). Risk and vulnerability considerations can be used to question whether positive outcomes, such as superior function, are necessarily a function of resilience or, rather, are a result of low risk or exposure (Luthar et al., 2000, p.550).

The identification of protective/promotive and risk/vulnerability factors is an important direction for research because they may change the way disruptions affect an entity over time (Luthar et al., 2000; Norris et al., 2009). However, the relationships of protective/promotive and risk/vulnerability factors to resilience may not apply for all entities across all situations at all times (Ungar, 2003). What functions as a protective factor for one entity or event may function as a vulnerability for another entity or event (Luthar et al., 2000). Rutter (2006) illustrates how the value of a contextual factor is not absolute by way of analogy: sickle cells are a risk factor for most people, however are protective when an individual is exposed to malaria.

The complexity of protective/promotive and risk/vulnerability factors makes it difficult to identify causal patterns of resilience (Ungar, 2013b). Often, protective/promotive and risk/vulnerability factors co-occur (Vanhove et al., 2015) and there can exist bidirectional relationships between and/or interactions among various protective/promotive and/or risk/vulnerability factors (Patterson, 2002). The effects of these factors can also accumulate over time and strain already limited resources. For these reasons, Ungar (2013) argues that it is essential that resilience be understood through the lens of the context in which a focal entity is exposed to and responds to disruption(s).

Concluding Remarks about the Cross-Discipline Literature Review

While many advocate for the continued utility of resilience perspectives, critics point to a number of concerns. For example, resilience is typically treated as a positive phenomenon, with a focus on strengths and prevention of negative outcomes. Critics argue that resilience in and of itself is neither positive nor negative (Bene et al., 2012), but merely a framework for understanding how entities manage disruptions. Critics also suggest that the resilience construct, particularly when defined as resistance or recovery, does not allow for change. Entities are expected to remain at or (quickly) return to the status quo, a state in which the entity is vulnerable to repeat occurrences. These critics argue that instead of *as you were* resilience should emphasize *as you should be* (Allmark et al., 2014). As indicated earlier, what constitutes *as you should be* is often dictated by normative expectations for appropriate behavior and is susceptible to criticism, as well (Furniss et al., 2011).

In addition, a number of criticisms surround the concept of agency. On the one hand, psychological research has been criticized for placing too much emphasis on agency, as it poses opportunities for victim blaming. If focus is on agency, then onus is on the individual (system component) to be resilient by working with what they have, even if it isn't much, or to go find what they need. By this approach, usually individuals who are able to be resilient are commended, while those who are not resilient are blamed (Barrios, 2014). Critics worry that a shift in focus to resilience might reinforce myths that anyone can make it if they just try hard enough (Rigsby, 1994). Interestingly, socio-ecologists argue that there is too little emphasis on agency (Cretney, 2014), again, pointing to the need for better synthesis across disciplines.

Grove (2015) expresses the concern that the increasing differences in the use and application of the term “resilience” has the effect of discrediting resilience, resulting in resilience becoming an overgeneralized buzzword. Others have echoed this concern (e.g., Bene et al., 2012). This apparent concept slurring may actually be because there is no single agreed upon trait, state, or process that embodies resilience. There may be multiple resiliencies – Masten and Obradovic (2006) write “resilience is a complex family of concepts that always requires careful conceptual and operational definition”. Anderson (2015), on the other hand, suggests that we should embrace diversity in resiliencies, instead of trying to force a common ground. Otherwise, we have only a theoretical and not a practical, applicable construct.

This cross-discipline literature review underscores troublesome gaps and inconsistencies in the current understanding of resilience in and of small groups. Despite the growing cross-disciplinary interest in resilience perspectives and their application, there are nontrivial differences in how resilience is conceptualized within and across disciplines (Welsh, 2014). Indeed, the literature on resilience lacks agreement with respect to a definition, as well as relevant antecedents, mediating factors/processes, and outcomes (Ganong & Coleman, 2002). Collaborative, cross-discipline efforts can help to identify issues of scale and to inform relationships among levels of analysis (Cicchetti, 2013). Without attention to other disciplines, theory becomes constricted and incomplete, even contradictory – as this review has noted. These fundamental concerns compromise the utility of the resilience construct (Luthar et al., 2000), and complicate direct applications to the team level. This is the time to take a critical pause and consider

the relevance and appropriate use(s) of the construct. A framework is needed to direct the alignment of conceptualization, measurement, and analysis of (team) resilience.

Framework for Conceptualizing Team Resilience

The cross-discipline review of the resilience literature revealed a multitude of plausible conceptualizations of resilience. These conceptualizations vary both across and within disciplines, as shown in Table 1. A science of resilience can only advance to the extent that researchers are able to agree on a means of accommodating and organizing multiple plausible conceptualizations of its focal construct. A framework for organizing team resilience-related efforts must provide an opportunity for researchers to consider multiple conceptualizations of resilience, and also provide guidelines for researchers to articulate comparable conceptualizations of the construct. Such a framework should first specify the criterion for demonstrating team resilience; that is, whether team resilience is being conceptualized as a global property, an emergent state, and/or a process; and include a statement as to the generalizability of a set of results across other entities, disruptions, outcomes, times, and/or contexts. A standardized framework can both direct the clarification of key components of alternate conceptualizations of team resilience and inform the design of future research efforts, including the selection and timing of measurements and the analyses performed.

Specification of the Criterion for Demonstrating Team Resilience

Team resilience will have different implications for practice depending on how it is conceptualized. Team processes are the mechanisms through which teams effect change and shift from state to state. Interactions among team members can coalesce into emergent states (Sanders, Munford, & Leibenberg., 2012). Behavioral indicators of

effective and ineffective team processes could be identified and monitored, signaling when an intervention or training could be administered to an underperforming work team to bolster improvement or course correction (i.e., team resilience as a process) and thus increase likelihood of a desired outcome (i.e., team resilience as a emergent state). On the other hand, a brittle or non-resilient team (i.e., team resilience as a global property) would be unlikely to benefit from intervention or training and would thus need to be dismantled. Organizations could develop and use a set of criteria to select combinations of members to form new, resilient teams. To simply suggest that a team is or should be resilient provides no insight into the past, present, or future of the team. Conceptualizations of team resilience should be explicit as to whether the construct is being conceptualized as a global property, emergent state, and/or process.

The cross-discipline literature search identified only fifteen empirical efforts purporting to address team resilience and few authors explicitly specified the criterion for observing team resilience. Indeed, while most authors defined team resilience as an “ability” or a “capacity” of a work group, it was not often clear whether team resilience was being conceptualized as a relatively enduring property of the team or, rather, a state that could be created or changed. Although four of the fifteen articles conceptualized team resilience as a process (Edson, 2012; Meneghal et al., 2014; Morgan et al., 2013; and Morgan et al., 2015), only two endeavored to actually *describe* the process of resilience (Morgan et al., 2013; Morgan et al., 2015).

Specifying Conceptualizations of Team Resilience as a Global Property

Team resilience, as a global construct, has no lower-level analog and is explicitly distinct from individual resilience (Kozlowski & Klein, 2000). A simple example of a

global group property is group cohesion. Group cohesion is a meaningless construct if there is no group, because an individual cannot be cohesive with his or herself. Unit resilience, as a global property of the unit, might, for example, mean that the unit could be designed to withstand or adapt to breakdowns in unit processes (e.g., added redundancy in group member functions). A global assessment of team resilience should yield a single score for each team assessed.

Specifying Conceptualizations of Team Resilience as an Emergent State

Because teamwork is a function of interdependencies among team members, an understanding of individual-level work phenomena does not always inform an understanding of team-level phenomena in the workplace (Baker, 1992) and one should be careful not to assume isomorphism across levels of analysis. Not all emergent states are created equal. Indeed, I have argued in the previous section that conceptualizations of (team) resilience as an emergent state should include an explanation of how the state is expected to come about. To demonstrate potential differences among alternate conceptualizations of team resilience as an emergent state, the reader is encouraged to consider the following four examples:

Conceptualization E1: *Team resilience is the combination of team members' perceptions of psychological resilience that emerges through composition.* This conceptualization assumes that resilience is isomorphic across levels of analysis and that quantification of team resilience is dependent upon some composite of resilience at the lower level. This conceptualization of team resilience does not require homogeneity of perceptions across team members (Arthur, Bell, & Edwards, 2007; Chan, 1998).

Conceptualization E2: *Team resilience is the shared experience of team members' perceptions of psychological resilience that emerges through composition.*

This conceptualization also assumes that resilience is isomorphic across levels of analysis and that quantification of team resilience is dependent upon some composite of resilience at the lower level. However, this conceptualization of team resilience requires homogeneity of perceptions across team members, arising through shared experience and processes (e.g., affective sharing), and is indexed as some function of within-team agreement (Chan, 1998).

Conceptualization E3: *Team resilience is the combination of team members' shared perceptions of team resilience that emerges through composition.* Similar to conceptualizations 1 and 2, this conceptualization assumes that resilience is isomorphic across levels of analysis and that quantification of team resilience is dependent upon some composite of resilience at the lower level, however this conceptualization requires respondents to provide appraisals using a referent-shift model. This conceptualization assumes that team members are knowledgeable about the level of resilience shared by the team as a whole. Like conceptualization E2, perceptions of team resilience are assumed to be homogeneous across team members (Arthur et al., 2007; Chan, 1998).

The subtle differences between conceptualizations E1, E2, and E3 could result in nontrivial differences in relative relationships with team outcomes and cross-level effects. In fact, with respect to the study of alternate conceptualizations of team efficacy, Arthur et al. (2007) found that both the additive and referent-shift conceptualizations were significant predictors of team (i.e., team) performance. However, use of a referent-shift compilation model explained more variance in parallel analyses of team performance,

and the referent-shift conceptualization added incremental validity when part of the hierarchical analysis. While the authors argue that the explicit alignment of efficacy and performance at the team level should be expected to result in a stronger relationship, this is only likely when team members have direct knowledge of the team phenomena (Kozlowski & Klein, 2000).

Conceptualization E4: *Team resilience is the pattern of team members' perceptions of individual resilience that emerges through configuration.* This conceptualization assumes that resilience is homologous across levels of analysis but that quantification of team resilience is dependent upon some disparity or exemplar value of resilience at the lower level (Chan, 1998). This conceptualization of team resilience implies heterogeneity of perceptions across team members.

Concluding remarks about team resilience conceptualized as an emergent state. Funke et al. (2012) argue that additive models, as the most parsimonious of approaches, may be preferred – although it should be noted that Kozlowski and Klein (2000) have expressed concern about the overreliance on compositional models of emergent team constructs. Empirical efforts have demonstrated that other variables, including the degree of interdependence across team members, can affect the nature of emergent phenomena (Funke et al., 2012). Bell (2007) has suggested that compositional and configural models, at least with respect to team demographics (e.g., personality factors, cognitive ability), should be considered simultaneously, as they provide different information about the make-up of the team. Emergent phenomena require time to emerge, thus different conceptualizations of team resilience may prove more or less meaningful at different stages in team development (Arthur et al., 2007).

A developed theoretical foundation for studying team resilience as an emergent state should provide a concise definition of the construct, as well as an explanation of the processes through which it emerges (if it does, in fact, emerge) from the lower level. The reader is referred to Furniss et al. (2011) for a “resilience markers framework for small teams” (p.2) which suggests additional considerations for the conceptualization of team resilience as an emergent state, specifically.

Specifying Conceptualizations of (Team) Resilience as a Process

Conceptualizations of resilience as a process, like those of resilience as an emergent state, require detailed specification. Resilience is often inferred through changes in some criterion over time. To demonstrate the differences between alternate conceptualizations of team resilience as a process, the reader is encouraged to consider the team resilience in terms of each of four distinct trajectories:

Conceptualization P1 (Resistance): *Team resilience is characterized as persistence of function despite exposure to disruption.* This conceptualization is evidenced through minimal variability over time with respect to some team outcome. Conceptualizing team resilience as resistance emphasizes a specific criterion cutoff score by which teams are classified as either resilient or not resilient (i.e., brittle).

Conceptualization P2 (Recovery): *Team resilience is characterized by the (timely) return to pre-disruption function following a decrement in function after exposure to a disruption.* This conceptualization is evidenced through a period of steady baseline function with respect to some team outcome, followed first by decline in function upon/after exposure to disruption and then by a return to baseline function. Conceptualizing team resilience as recovery may emphasize a time period within which a

team would be expected to return to pre-disruption function. The use of a criterion cutoff score would allow an opportunity to classify teams as either resilient or not resilient (i.e., brittle), whereas attention paid to observed variability in recovery periods (i.e., more or less time to recover) would be indicative of a resilience continuum.

Conceptualization P3 (Renewal): *Team resilience is characterized by qualitatively different functioning following exposure to disruption.* Conceptualizing team resilience as renewal presents a measurement challenge, as team function will change qualitatively but not quantitatively. The use of a criterion checklist would allow an opportunity to classify teams as either resilient or not resilience (e.g., minimum magnitude of change), or as falling along some resilience continuum (e.g., number of changes).

Conceptualization P4 (Growth): *Team resilience is characterized by improved functioning following exposure to disruption.* This conceptualization is evidence through a period of steady baseline function with respect to some team outcome, followed by an eventual increase in post-disruption function. Conceptualizing team resilience as growth may or may not account, first, for a post-disruption decrement in function (i.e., recovery plus growth versus growth). The use of a difference score to measure a change in pre- and post-disruption function after some period of time would allow researchers to either classify teams as resilient or not resilient (i.e., brittle) or to classify team function along some resilience continuum.

Concluding remarks about team resilience conceptualized as process. More empirical research is needed to determine the prevalence of these various and other possible response trajectories. Norris et al. (2008) and Bonanno et al. (2010) have led

some initial efforts. Norris et al (2009) found that all identified trajectories were observed in measurable amounts. Bonanno et al. (2010) reports that the prevalence of each trajectory can be quantified: resilience (35-65%), recovery (15-25%), chronic distress – functional impairment that lasts a long time, maybe years (5-30%), and delayed distress – gradual worsening over time (0-15%). At least four other resilience trajectories have been identified in the literature, including relapsing/remitting, delayed dysfunction (Bonanno, 2008), chronic dysfunction (Norris et al., 2009), and normalization (Masten & Wright, 2010). Cross-sectional studies are not likely to be able to differentiate among trajectories, and so future studies of resilience trajectories will need to make use of longitudinal designs (Norris et al., 2009).

In addition to specifying the specific response trajectory(ies) of interest, researchers must also specify at what time response trajectories are expected to change course. Most studies applying process conceptualizations of resilience focus on observations of the outcome of interest and how it changes over time. Fewer studies consider the behaviors that promote the observed changes in response trajectories. Efforts that consider the nature of the process can help to elucidate how team resilience occurs (state conceptualization) and/or how disruptions are managed (process conceptualizations).

While resilience trajectories are perhaps indicative of various processes for managing disruption, a focus on outcomes alone does not illuminate the process(es) responsible for observed fluctuations over time. The distinction between emergent states and team processes is sometimes muddled in the literature. Many empirical efforts which purport to study team processes effectively measure and analyze these constructs as

mediating mechanisms. While these efforts may underscore temporal dynamics, they fail to *describe* the process(es) of interest. To help clarify the distinction, Marks, Mathieu, and Zaccaro (2001) have defined team processes as: “*members’ interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavior activities directed toward organizing taskwork to achieve collective goals*” (p.357; italics in original). As with emergent states, the processes that change team inputs into outputs, while (often) a collective effort, can be achieved through a set of interdependent activities that can be performed by individual team members either concurrently or sequentially (i.e., not every team member is doing the same thing at the same time). Studies designed to describe the how teams manage disruptions are few (e.g., Morgan, Fletcher, & Sarkar, 2015).

Concluding Remarks about the Specification of a Criterion for Resilience

Well-articulated conceptualizations of team resilience should explicitly specify which criterion (i.e., global property, emergent state, and/or process) is of interest. In addition, resilience is sometimes conceptualized as a general phenomenon and sometimes a specific phenomenon. Efforts are needed to explicate the generalizability of the phenomenon to other entities, disruptions, outcomes, timelines, and/or contextual factors.

Application of an Expanded Heuristic Approach

Allmark et al.’s (2014) heuristic approach offers a broad conceptualization of resilience as a function of the relationships among a focal entity, disruption(s), and outcome(s) of interest. Because this heuristic approach does not bind resilience to any particular entity, disruption, outcome or response trajectory, it provides a useful starting point for the development of a general team resilience framework. The three components of the heuristic correspond to the questions, *of what, to what, and for what*. Two

additional components are added here: *at what time*, to account for temporal dynamics, and *under what circumstances*, to contextualize the stated relationships. This expanded heuristic approach offers an inclusive framework for operationalizing resilience, reduces the possibility of stakeholders making erroneous assumptions, provides direction and justification for the number and timing of measurements, and fosters opportunities for replicability across research efforts. The expanded heuristic approach is presented in Figure 3. Each of the components of this expanded heuristic approach is described in more detail in the sections that follow.

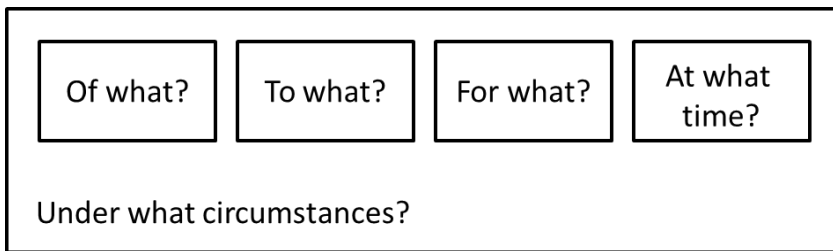


Figure 3. Illustration of the expanded Team Resilience Heuristic Approach

Component 1: Resilience of what?

Conceptualization of resilience can become complicated when the unit of analysis is a system or a collective. Recall that, by definition, teams are collectives working toward a (set of) common goal(s). Groups are classified as teams when there is interdependence among members (Salas, Dickinson, Converse, & Tannenbaum, 1992). Work teams are often complex socio-technical systems nested within organizations and composed of interdependent subsystems (e.g., team members, technologies). Although interdependence is inherent to team work, work teams are created for any number of reasons and can perform a multitude of tasks. Thus, teams will vary with respect to the

degree of interdependence required (Saavedra, Earley, & Van Dyne, 1993). Different degrees of interdependence can greatly affect the generalizability of results to other team contexts. In addition, because teamwork is purpose-driven behavior, team resilience may not be the same as other forms of collective resilience. Therefore, it is important that studies of team resilience are predicated on the specification of a shared goal/set of shared goals and are contextualized using a rich description of the teamwork arrangement.

In practice, researchers have applied the term *team resilience* to study a diverse array of focal entities, including student project teams (e.g., Edson, 2012), emergency response teams (Furniss et al., 2012), Top Management Teams (e.g., Carmeli et al., 2012), sports teams (e.g., Morgan et al., 2013), and restaurant staff (Bennett et al., 2010). A diverse sampling of work teams should improve the generalizability and utility of the team resilience construct, assuming the research across samples uses the same or very similar conceptualization of team resilience. However, there is as yet insufficient consistency across conceptualizations of team resilience. The science of team resilience might yet benefit from this diversity of samples if sufficient details about the team work arrangements are provided – which would enable consumers of this literature to draw inferences about parallels and differences across studies. Unfortunately, very few of these efforts have specified the particulars of the team. There has been intermittent mention across studies of team size (e.g., Carmeli et al., 2012), functional purpose (e.g., Edson et al., 2012), and membership tenure (e.g., West et al., 2009) – but this information is not presented consistently. Nor do most studies address interdependency among team members. As an example, it is unclear the ways in which restaurant workers must

coordinate efforts to achieve a common goal (Bennett et al., 2010). Thus, the expanded framework encourages authors to provide detailed descriptions of focal team(s) and team work arrangement(s) so as to facilitate comparisons and synthesis across team resilience research efforts.

Component 2: Resilience to what?

“Disruption” warrants thorough explanation. To avoid confounding an exposure with its effect, I recommend the use of the terms *disruptor* and *disruption*. Herein, the term *disruptor* is used to refer to anything that has the *potential* to interrupt familiar routines or situations and thus affect – either directly or indirectly – team processes and team outcomes for some period of time. The term *disruption* is used to refer to the effect of exposure to a disruptor. It is not sufficient to use non-descript terms like “challenge” or “complex task.” Rather, disruptors and disruptions should be described in some detail, preferably with examples. Disruptors can be classified according to how often they occur (frequency), for how long they occur (duration), and their degree (or magnitude) of impact on outcome(s) of interest, and whether they were expected to occur or not. Disruptors, for example, may come in the form of daily hassles with relatively minor impact and predictable inconveniences (Pennebaker & Harber, 1993), or an event with a significant impact like a trauma or crisis (Bhamra et al., 2011). In addition, multiple disruptors may occur simultaneously. Disruptions should also be explained in some detail. Several taxonomies of team process and outcomes have been developed (e.g., Marks et al., 2001) which can be used to help standardize descriptions of disruption. Thorough descriptions of both disruptors and disruptions will help researchers to identify

consistent patterns in the management of disruptions, as well as the relationship of disruptions with outcomes.

In practice, researchers have studied team resilience in response to a variety of disruptors, often given broad labels like “challenge” (Alliger, Cerasoli, Tannenbaum, & Vessey, 2015), “stressor” (Bennett et al., 2010), “adversity” (Carmeli et al., 2012), and/or “emergency” (Gomes et al., 2014). Fewer studies (e.g., Blatt, 2009) have provided specific examples of these disruptors or provided rich description of what types of phenomena are subsumed under these broad labels. As with the previous component of this expanded heuristic, there is as yet insufficient description of disruptors and consequent disruptions to attempt to synthesize findings across studies of team resilience.

Component 3: Resilience for what?

Team performance is the culmination of coordinated efforts that evolve over time, and is influenced by both endogenous and exogenous factors. These coordinated efforts involve the independent actions of individual team members as they perform their unique roles and responsibilities (taskwork) as well as the interdependent efforts required to move the team toward the accomplishment of its goals (teamwork). It can be noted that individual role competency is necessary but not sufficient for team success. Although team effectiveness is often evaluated in terms of performance metrics, researchers have studied team resilience as it related to a variety of outcomes, for example: in-role and extra-role performance (Meneghal et al., 2014), team processes (West et al., 2009), health behaviors (Bennett et al., 2010), culture of excellence (Morgan et al., 2015), and virtuousness (Stephens et al., 2013).

As stated in the cross-discipline review, in order to define the outcome of interest, one must necessarily make some judgment about appropriate behavior (Rigsby, 1994). Scholars are urged to consider that there may be multiple ways for an entity or system to be resilient. Multiple approaches can lead to successful team performance, but some may leave one or more team members dissatisfied with how they or other team members managed themselves to achieve that performance. For example, cutting corners to meet a deadline may make a situation unsafe for some team members. Morally injurious experiences, such as perceived violations of personal ethics, can negatively affect the psychological well-being of some or all team members, potentially affecting the willingness and/or commitment of those team members to continue to value and/or pursue other current and future team goals (Frankfurt & Frazier, 2016). Thus, success with respect to one team outcome does not imply success with respect to another team outcome.

Component 4: Resilience at what time?

Complex system performance is the culmination of coordinated efforts that occur over time. Team members make many diverse contributions to the coordinated effort, and these can be arranged in in any number of combinations, resulting in multiple paths that can lead to an outcome. Team performance is inherently variable – both within and between systems (Henning, Bizarro, Dove-Steinkamp, & Calabrese, 2014). In addition, the inherent interdependence among team members can create novel or mask existing feedback loops (Bakx & Nyce, 2013), changing (or concealing) system processes. A minor disruption in a seemingly isolated part of the system can have dramatic effects elsewhere within the system – or for the entire system – and these effects could occur in

the short or long term (Sanders et al., 2012). For these reasons, some consideration must be made as to when measurements are collected as well as the source (e.g., team member) from which information will be collected.

Timing of these measurements can be dictated by how resilience is operationalized. If resilience is a capacity to respond (a trait or an emergent state), then it may be possible to assess resilience *a priori* – before disruption occurs. Coping strategies and adaptive adjustments may have different effects in the short and long term (Ungar, 2013). In addition, small changes which are in and of themselves not detectable (or do not have an obvious effect) may add up over time (Rankin et al., 2014).

Conceptualizations of resilience as a process would require that some observations are made over time. For example, it is necessary to specify the nature of the recovery trajectory, or the timing of recovery that is of most interest. Researchers should consider at what point resilience is likely to be observed (or inferred) and to specify a rationale accordingly. Cross-sectional studies are not likely to be able to differentiate among trajectories, and so future studies of team resilience trajectories will need to make use of longitudinal designs (Norris et al., 2009).

In practice, research on team resilience has rarely addressed temporal dynamics. While inattention to temporal dynamics may be the result of global conceptualizations of team resilience, even those studies explicitly purporting to measure resilience either as an emergent state or as a process often fail to indicate a relevant timeline. Edson (2012) discusses the process of *becoming* resilient using a stage model of team development. Morgan et al. (2015) bound the process of resilience within the life cycle of an elite sports team (i.e., seven-season history). Both Edson (2012) and Morgan et al. (2013,

2015) use retrospective techniques to address temporal dynamics. West et al. (2009) was the only study to collect objective measures at multiple time points. The authors measured change in resilience after first- and final- student class group projects, and demonstrated that the phenomenon they labeled “team resilience” changed as a function of team tenure.

Component 5: Resilience under what circumstances?

Contextual factors play an important role in team resilience. Teams are subjected to both endogenous and exogenous influences; not everything acting on the team or team members originates within the team work context. For example, team members are simultaneously a part of other human systems (e.g., families, community organizations), each with complex influences on team member behavior. These external influences affect how individuals behave, think, and emote at work. Individual team member and team behaviors, cognitions, and emotions can have an influence on team outcomes – facilitative, destructive, or no effect.

The team resilience literature postulates relationships between team resilience and a number of other factors, some of which may classify as protective/promotive or risk/vulnerability factors. Affect has received a great deal of attention, including connectivity (Carmeli et al., 2013), positive emotions (Meneghal et al., 2014; West et al., 2009), and emotional carrying capacity (Stephens et al., 2013), and is typically found to contribute to the emergence of team resilience.

Suggestions for the Measurement and Analysis of Team Resilience

The expanded heuristic approach, as presented above, focuses on the key components of who (*of whom*), what (*to what*), why (*for what*), when (*at what time*), and

where (*under what circumstances*) of team resilience. The synthesis of team resilience research can likely be achieved by explicitly addressing each of these components, thereby providing other researchers and practitioners with sufficient information to make meaningful inferences about generalizability and application. In addition, researchers are urged to consider how nontrivial differences in conceptualizations of resilience can result from differences in how each of the components of the expanded heuristic approach are addressed and to remain sensitive to how such differences direct measurement (e.g., selection of measures, timing of measurements), analysis, and intervention.

Select and Determine Timing of Measurement(s)

There are a number of resilience scales currently available but questions remain as to whether they accurately assess team resilience. Scales used to assess shared properties at the team level should use wording that reflects that level of interest. So, although data is often being collected at the team member level when using these scales, the verbiage used must involve appraisal of the team (Kozlowski & Klein, 2000). In some cases this can be accomplished by altering the instructions and/or the item referents of scales that were originally created to capture individual resilience. Indeed, many authors have assumed that team resilience is sufficiently similar to individual resilience to warrant a use of modified measures of psychological resilience, simply shifting the item referent from the individual (e.g., I/my) to the team (e.g., we/our). However, researchers must be cautious about modifying scales to assess team-level phenomena for two reasons: (1) isomorphism of resilience across scales has not yet been sufficiently established in the literature and (2) this practice may alter the psychometric properties of the scale (Funke et al., 2012; Morgeson & Hoffman, 1999). The direct application of psychological theory

at the team level may be problematic. It is also worth noting subtle variations in the methods used to aggregate individual appraisals, such as shifting the referent in each item from “self” to “team,” may affect the meaning of the construct, resulting in the inadvertent measurement of different constructs. For example, the aggregate of individual team member perceptions of his or her own personal resilience (self-referent) may mean something very different than the aggregate of individual team member perceptions of his or her team’s resilience (team referent). Such differences would complicate the synthesis of results across studies, although all purport to be interested in the same construct of team resilience.

With respect to most applications, team member scores regarding team-level phenomena are aggregated to arrive at a single score for the team. An alternative approach is to arrive at a single score through discussion and consensus in the context of a focus team. This latter option is time-consuming and may prove impractical for some applications. Reaching consensus through discussion can sometimes be problematic because this process can both affect and be affected by team dynamics and may result in biased outcomes (Funke et al., 2012; Lindsley et al., 1995).

In addition to concerns about the availability of meaningful measures of team resilience, careful consideration should be given to the timing of measurement(s). It is unlikely that time would affect the measurement of trait resiliency, as traits are expected to remain relatively stable. However, temporal factors are inherent to both state and process conceptualizations of resilience. For conceptualizations of resilience as a state, sufficient time must be afforded for the phenomenon to emerge. A mistimed measurement may fail to observe resilience. For process conceptualizations of resilience,

the timing of measurement should be selected to align with the expected response trajectory(ies). Given the multiple possible resilience trajectories, capturing the resilience component of interest during possible change periods may require periodic sampling. Indeed, having too few or mistimed measurements may obscure otherwise meaningful course changes in response trajectories.

Conduct Appropriate Analyses

One of the first steps in the quantitative analysis of team resilience is justification of aggregation. For shared constructs, one can calculate an index of inter-team agreement, like r_{wg} (James, DeMaree, & Wolf, 1993). This index addresses similarity among members within the same team. However, r_{wg} does not account for between-team differences. To determine whether teams vary with respect to ratings of some construct, one can calculate intraclass correlations (ICC). Evidence of nontrivial team-level variance suggests that ratings within teams violate the assumption of independence associated with most statistical tests. Therefore, an ICC of greater than zero suggests that subsequent analysis must be conducted at the team level (Zaccaro, Blair, Peterson, & Zazanis, 1995). Once decisions about aggregation have been made, statistical analyses are performed using methods associated with the appropriate level(s) of analysis. For example, analyses performed at a single level (e.g., team-only) could proceed using standard ordinary least squares regression or analysis of variance. However, analyses which require simultaneous consideration of data at multiple levels (e.g., time nested within teams or team members nested within teams) need to proceed using methods created to handle nested data. Appropriate methods include random coefficients

modeling (RCM), multilevel structural equation modeling (MSEM), and within and between analyses (WABA).

Concluding Remarks about the Expanded Team Resilience Framework

Many researchers and practitioners see resilience as a positive phenomenon that builds on strengths already present in a situation and/or among its participants, and promotes their ability to use proactive strategies for managing adversity (Luthar, Cicchetti, & Becker, 2000). And although teams are increasingly relied upon to handle adversity, team resilience as a construct is only beginning to receive the scholarly interest it deserves (e.g., Morgan et al., 2013). The cross-discipline review of the resilience literature revealed an opportunity to construct a framework for team resilience which can support and guide the articulation of multiple conceptualizations of team resilience. The resulting framework provides an evidence-based foundation upon which both future and existing resilience conceptualizations can be compared with one another in order to determine their levels of synthesis and generalizability of findings.

Team (Small Unit) Resilience in the United States Army

Earlier sections of this manuscript underscored the need for theoretical development of the team resilience construct. The cross-discipline review has highlighted troublesome gaps and inconsistencies in our understanding of resilience that are echoed in the burgeoning literature of team resilience. To date, there has been little guidance regarding whether and how resilience should be operationalized in team contexts and there may be serious drawbacks to direct application of theory developed to understand resilience at other levels of analysis to the team level. I have argued that theoretical development of the team resilience construct can benefit by framing conceptualization in accordance with the expanded heuristic approach. Given the sparse

attention devoted to describing the process/processes of team resilience, and because the extant literature offers little guidance for explicating the specific components of the expanded framework nor a means of crafting informed hypotheses regarding the relationships among said components, foundational work must be undertaken to describe the process of team resilience.

Qualitative Methodology

Qualitative methods are useful for exploring novel constructs and processes (Hemmingway, 2001), and where previous research is often limited and hypotheses cannot be generated (Creswell, 2007). As such, qualitative methods are “particularly appropriate for answering questions of ‘How?’ or ‘What?’” (Morrow, 2007, p.211). These methods are well-suited for the study of bounded or unique cases (e.g., teams). Common qualitative methodologies include phenomenology, ethnography, case study, narrative analysis, and grounded theory.

Grounded Theory (GT) is a rigorous qualitative method that relies on systematic, iterative sampling, interviewing, and coding procedures to develop a substantive theory of a psychological phenomenon – such as team resilience – that is “grounded” in participants’ lived experiences (Fassinger, 2005). Originally developed by sociologists (Glaser & Strauss, 1967), GT has become a widely used tool in health and medicine (i.e., nursing; Sbaraini, Carter, Evans, & Blinkhorn, 2011), as well as counseling psychology (Yeh & Inman, 2007). A GT models the phenomenon of interest, explicating relationships among core variables – called *categories*, emphasizing causes and conditions of its development over time, as well as its effects (Charmaz, 2006). These relationships inform propositions and hypotheses for future research.

GT is well-suited for foundational work, when theory is absent or inadequate (Creswell, Hanson, Plano, & Morales, 2007), and is often used to provide a platform upon which to advance a larger research program (Haverkamp & Young, 2007). Research questions that seek to explore a process lend themselves to the use of a grounded theory approach (Strauss & Corbin, 1990), particularly when the research interest is in social interactions (Sbaraini et al., 2011). In addition, GT researchers suggest that the methodology holds promise for innovative studies of collective phenomena (Charmaz, 2006). Because the resulting substantive theory is grounded in the lived experiences of participants, it is often accessible for use by laymen and those in applied settings (Glaser, 1978).

Foundational efforts which employ qualitative methodology can allow for the development of a substantive theory of team resilience. The United States (US) Army is interested in exploring resilience in and of units and thus presents as a meaningful sample with which to explore the process of managing disruption.

Resilience and the United States Army

US Army Soldiers are subjected to a variety of stressors (e.g., demanding missions, prolonged separation from family; Cornum, Mathews, & Seligman, 2011). These and other stressors can quickly deteriorate the physical and psychological health of Soldiers. Poor psychological health is a leading cause of hospitalization among Army Soldiers (Bobrow, Cooke, Knowles, & Vieten, 2012) and can compromise the effectiveness of those who remain on active duty (Cornum et al., 2011). Not all Soldiers experience negative outcomes as a result of exposure to potential stressors, nor are those that do affected to the same degree (Lee et al., 2011). However, an increasing number of

Soldiers reportedly suffer from cognitive and psychological impairments (e.g., traumatic brain injuries, post-traumatic stress disorder), succumb to self-injurious behavior (e.g., suicide, substance use), and/or perpetrate violence against others (e.g., domestic abuse, sexual assault). According to a recent study, Soldiers who have committed suicide, tested positive for illicit drug use, or committed violent crimes scored significantly lower on Army measures of psychological resilience than Soldiers who have not been implicated in these activities (Lester, Harms, Bulling, Herian, & Spain, 2011). Thus, the Army has placed critical emphasis on promoting psychological *resilience*, which the Army has loosely defined as “the mental, physical, emotional, and behavioral ability to face and cope with adversity, adapt to change, recover, learn, and grow from temporary setbacks” (United States Army Ready and Resilient Campaign [R2C], 2013, p.3). The Army has appropriated substantial investment to the study of resilience, with the deliberate goal of creating an organizational culture that values, builds, and sustains psychological resilience.

The US Army Ready and Resilient Campaign (R2C, 2013) suggests “improvements in individual resilience and performance increase the capabilities and the readiness of collective groups and units and the Army as a whole”. Indeed, individuals are likely to influence the resilience of the collective. However, the causal relationship may not be unidirectional (Bartone, 2006, p.139). Military psychologists have begun to consider resilient-relevant interpersonal processes like social support (Lee et al., 2011), social judgment (Bartone, 2009), morale, and unit cohesion (Britt, Sinclair, & McFadden, 2013). This literature suggests that there may be important cross-level influences of interest to the development of resilience at both levels of analysis (individual, collective).

There are multiple viable conceptualizations of resilience in small military units. Team resilience, as a global property of the unit, might, for example, mean that the unit could be designed to withstand or adapt to breakdowns in unit processes (e.g., added redundancy in group member functions). Alternatively, team resilience may emerge through composition and/or configuration. Team resilience as described in the Army Ready and Resilience Campaign (R2C, 2013) is an example of a compositional emergent phenomenon, because it assumes that team resilience is based on an additive model of unit member attributes. A configural model of team resilience, on the other hand, may suggest, for example, that team resilience is cultivated by having a highly resilient unit leader. Team resilience, as a process, would describe how unit members are affected by and manage disruptions.

The differences between these (and likely other possible) conceptualizations could result in nontrivial differences in relative relationships with unit-level antecedents, outcomes, and cross-level effects. The nature of the multilevel construct – whether compositional, configural, or global – also affects the utility of what is currently understood about psychological resilience. If unit resilience is a compositional, emergent property of the unit, then what we know about psychological resilience should be easily applied to what we want to know about unit resilience. If unit resilience is a configural, emergent property of the unit, then what we know about psychological resilience may not apply consistently for all elements at the unit level. And if unit resilience is a global property of a unit, then it would be very different from psychological resilience and the literature on psychological resilience would have limited value.

Group research and multi-level theory suggest that units may experience resilience, and that *resilience within units* (some combination or configuration of unit member resilience) is not necessarily equivalent to *unit resilience* (global resilience phenomena). While the Army's own R2C (2013) program suggests a compositional model of unit resilience, the Army appreciates there may be other conceptualizations of unit resilience. It is therefore important to explore, define, and differentiate between resilience within a unit and the possible variants of unit resilience. More substantive understanding of unit resilience is an important foundation upon which the Army can develop tools for organizing and/or training resilient units. A useful conceptualization of unit resilience will both reflect the lived experiences of US Army Soldiers and be commensurate with the mission of the US Army.

Research Questions

The current study has been designed to address three primary research questions. First, the expanded framework suggests that certain conditions must be satisfied. Rather than restrict the study of small unit resilience by satisfying these conditions *a priori* – either through conjecture or based upon the direction of a deficient literature – I use the data to identify elements of the team resilience framework as it applies to this particular sample. Thus, I ask the following question:

RQ1: *How can the expanded heuristic approach inform the conceptualization of the process of team resilience for small military units? Specifically:*

RQ1a: *What does it mean to be a “small military unit”?*

RQ1b: *To what potential disruptors are small military units exposed?*

RQ1c: *What small military unit outcomes are affected by disruption?*

***RQ1d:** What temporal dynamics are important for a small military unit's management of disruption?*

***RQ1e:** Under what circumstances do small military units manage disruption?*

In addition, qualitative inquiry affords a critical foundation for the development of a theory of small unit (team) resilience. The US Army presents as a meaningful sample with which to explore the process of managing disruptions. Thus, the current study will address the following research question:

***RQ2:** How do small military units manage disruption? Specifically:*

***RQ2a:** What elements are common to the process of managing disruption?*

***RQ2b:** What factors affect the process of managing disruption?*

Lastly, both multi-level theory and the cross-discipline resilience literature suggest that team resilience may or may not be similar to resilience at other levels of analysis. Given continued interest in psychological resilience, I ask the following additional research question:

***RQ3:** How is the process of small unit resilience related to psychological resilience as currently conceptualized by the US Army?*

The resulting substantive theory of small unit (team) resilience can be used to inform the development of future unit-level assessments, training, and other interventions aimed at improving the readiness and resilience of the Force. While answers to the aforementioned research questions are used herein to articulate an operationalization of small unit (team) resilience that best suits the needs of the United States Army,

specifically, this foundational research can contribute to an enriched understanding of team resilience generally.

Method

This exploratory research used a grounded theory approach to explore resilience at the small-unit level. Grounded Theory is a largely inductive qualitative methodology that relies on systematic iterative sampling, interviewing, and coding procedures to develop a substantive theory of a process (i.e., unit resilience). Data were constructed through semi-structured interviews and focus groups with the target population. A schematic of the grounded theory approach (Andersen, Inoue, & Walsh, 2013) is provided in Appendix A.

Researcher Background and Perspectives

An important aspect of grounded theory research is self-awareness, whereby the researcher acknowledges his or her personal biases. This study was conducted as a part of my doctoral training in Industrial-Organizational Psychology. My research is focused on personnel development and performance in complex sociotechnical systems, with an emphasis on occupational stress and resilience in teams. My graduate coursework and research efforts have focused on the continuous development of a wide array of methodological and analytic skills, mostly quantitative. Thus, I position myself within a post-positivistic paradigm. I was fortunate to complete my field research as a fellow with the Army Research Institute. Through this experience I gained a deep appreciation for the sacrifices made by service men and women. The Army has an expressed interest in the development and maintenance of psychological resilience and is interested in exploring the utility of similar efforts for military collectives. To counter any bias that

may come from my research experiences and appreciation for service men and women, I have taken steps to ensure the trustworthiness of this study.

Participants

The initial goal of a GT approach is to explore the breadth of a phenomenon. Sources are not selected to improve statistical inference – as participants would be recruited in quantitative research – but rather to provide sufficiently rich data to develop the substantive theory. Selecting a GT sample is always done purposefully, and is directed by criteria drawn from the questions guiding the research (Morrow, 2005). GT primarily uses theoretical sampling, “a process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges” (Glaser, 1978, p.36). The process continues until all categories are saturated and no new information is being obtained (Morrow, 2007). Used well, this process avoids excessive oversampling and unnecessary redundancy in the data (Fassinger, 2005).

The sample included 121 active duty Soldiers (115 males, 6 females) from the Combat Arms division of the US Army Regimental System (i.e., Infantry, Field Artillery, Armor, Aviation, and Air Defense Artillery), including small unit members, leaders, trainers, and other individuals well-positioned to direct, observe, and/or otherwise evaluate small unit performance. Volunteers participated in 70 sessions, including 51 individual interviews and 19 small (fewer than five participants) focus groups. Participants reported an average participant age of 28.06 years ($SD = 5.79$ years) and an average tenure with the military of 7.02 years ($SD = 4.83$). The sample was heavily drawn from enlisted ranks (95 enlisted, ranging in rank from Private to Sergeant First

Class; 18 officers, ranging in rank from Second Lieutenant to Lieutenant Colonel; and 8 Warrant Officers) and participation was fairly evenly drawn from branches within Combat Arms (22 from Infantry, 11 from Armor, 27 from Air Defense Artillery, 25 from Field Artillery, and 15 from Aviation,) and included 21 observers/trainers. Thirty-five participants reported having a GED or high school diploma, 48 some college, 5 associate's degree, 23 bachelor's degree, and 4 graduate or professional degree.

Participants were *purposefully*, rather than randomly, selected so as to maximize the opportunity for this research to tap the full spectrum of resilience-related experiences at the unit level. Initially, a well-rounded sample of Army personnel from a variety of specialties were requested through the Army Research Institute for Behavioral and Social Sciences' (ARI) Research Support Request (RSR) process, with emphasis on individuals who are members of identifiable small units (i.e., *criterion-based sampling*); units of interest included air and tank crews, artillery crews, and infantry squads. As the study progressed, selection efforts were tailored to recruit only individuals whose perspectives were likely to further elucidate underdeveloped elements of the emerging theory (i.e., *theoretical sampling*). Participants meeting sampling criteria were recruited during formal Army-sponsored data collection opportunities.

Data Construction

Most GT studies use transcribed interviews as primary sources for data construction (Polkinghorne, 2005). The typical GT interview is a set of loosely structured (Kvale, 1996) open-ended items and follow-up prompts (Fassinger, 2005). In GT, interview items relate to the both the research questions and the subsequent analytic process. GT interviews are loosely structured so as to be quickly adapted to the particular

source (Polkinghorne, 2005) as well as the developing theory (Glaser, 1978). “To adhere rigidly to [the protocol] throughout the research study will foreclose on the data possibilities inherent in the situation, limit the amount and type of data gathered, and prevent the researcher from achieving density and variation of concepts necessary for developing a grounded theory” (Strauss & Corbin, 1990, p.180). The interview protocol is easily adapted for use with individuals or groups, as in focus group discussions (Ehigie & Ehigie, 2005). Other sources (e.g., direct or indirect observation, archival records) can be used to triangulate data construction, improving the rigor of the GT model.

For this study, data was constructed through a series of individual interviews and small focus groups (up to five Soldiers) with the target population. Interviews and focus groups followed a loosely structured script: Participants were asked about their experience with and/or observations of small unit performance under day-to-day and potentially stressful conditions. The interview protocol included a set of loosely structured probes that allowed the interviewer to seek clarification and/or to elicit richer, thicker description of participants’ experiences. For example, “What influenced or caused this phenomenon to occur?” and “What strategies were employed during this process?” (Creswell, 2007, p.66). The interview and focus group protocols (See Appendix B) outlined the general scope of questions, although the specific items used became necessarily more targeted as a function of the needs of the data construction process. Sessions lasted no more than 1.5 hours.

Procedure

Participation in this study was voluntary. Upon arrival at the set date and time, participants were escorted into the designated interview/focus group area. The

interview/focus group area was private and, to the extent possible, remained void of distraction. The researcher was cognizant of the need to protect participants' confidentiality and to encourage active participation. Thus, the interview and focus group protocols required that other individuals (i.e., those who are neither a member of the research team or would-be participants) not be permitted inside the designated interview area at any time during a session. To further protect the confidentiality of focus group participants, focus groups were comprised of individuals within a single occupational specialty and from the same or similar rank/position. The focus group protocol was designed to ensure that no one from a participant's direct chain of command was present during the session.

After all other individuals exited the interview area, informed consent procedures commenced. Participants provided consent on an individual basis (i.e., interview) or as a part of a small group (i.e., focus group). Soldiers were assured that there was no penalty for choosing not to participate. Participants were told that – with their consent – they would be audio-recorded. For Soldiers who provided consent, interviews and focus groups were recorded using a digital voice recorder for the purpose of accurately transcribing the content. The researcher informed participants – verbally (See Appendix B) and via the Informed Consent Form (See Appendix C) – about the use of audio recording. Audio recording was not used with those Soldiers who wished to participate but did not wish to be recorded – and when one or more Soldiers in a focus group did not wish to be recorded, the entire session continued unrecorded. At any time, Soldiers could request that the recording be paused or stopped. In addition, the consent procedures informed participants about how the information they provided would be used.

Participants were informed that the data would be used for research purposes, which may include non-government purposes. Participants were informed that certain comments might be quoted to illustrate points identified through analysis and that, if direct quotes were used, these quotes would be devoid of personal identifiers. After being informed of the purpose and potential risks of their participation, and reviewing the Informed Consent Form, Soldiers were permitted to make an informed decision about whether or not they wished to participate in the research. Informed Consent Forms and a Privacy Statement Act (See Appendix D) were provided to all Soldiers at that time. Only those who agreed to participate and signed an Informed Consent Form continued – all others were thanked for their time and asked to remain quietly in a separate area until the session was over. Participants were asked to complete a brief demographics inventory (Appendix E) and then the interview/focus group commenced.

With participants' consent, interviews and focus groups were audio recorded using a handheld digital recording device. Digital recording devices were kept in a locked attaché when being transported or when otherwise not in use. Recordings of interviews and focus groups remained in the internal memory of the digital recorder until the record was fully transcribed. The researcher transcribed the audio record directly from the digital recorder (i.e., under no circumstances was the audio record transferred from the recorder). Specific references were generalized according to position and location. For example, should a participant make mention of a "Captain Smith", session notes were edited to read "Captain XXX." If the participant mentioned that (s)he spent several months at "FOB Shank in Afghanistan," session notes were edited to read that (s)he spent several months "in Afghanistan." Similarly, no personally identifiable

information (e.g., names of self or other personal relations, unit identifiers, duty assignments) was transcribed, with the exception of participant rank, military occupational specialty (MOS), and length of service.

Session notes, audio records, hard copy transcripts, demographics inventories, and signed consent forms were securely stored in locked filing cabinets at the Army Research Institute (ARI, Fort Belvoir). Soft copy transcripts were stored as digital files on a Common Access Card (CAC) controlled government workstation at ARI, as well as a password-protected personal laptop. Audio recorders and personal laptops were kept in a locked attaché when being transported or when otherwise not in use. The personal laptop was limited to official business use until the data was removed (i.e., following final report). Only individuals listed as members of the research team and approved as such by a joint agreement of the Army Research Institute and University Institutional Review Boards were permitted access to data generated as a part of this research protocol.

In an effort to allow participants the opportunity to direct the content of their responses, and thereby facilitate the emergence of a grounded theory, the researcher deemed it necessary to use a less direct title/purpose in the recruitment materials and semi-structured interview and focus group items. Specifically, the Army has invested substantial resources in building the resilience of individual Soldiers. It is likely that Soldiers have some experience with the products of the Ready and Resilient Campaign (R2C, 2013). The possibility for preconceived notions about what it means for an individual to be resilient to bias participant responses with respect to unit resilience needed to be minimized. Thus, on all participant materials, the title of this study read “Understanding Factors Associated with Unit Adaptability”.

The procedures outlined herein were reviewed and approved by the ARI Institutional Review Board (IRB). The University IRB agreed to accept the ARI determination.

Analysis

GT follows a systematic, iterative data construction and analysis process. Indeed, “data analysis is not viewed as the final stage of qualitative research but as part of a rotating cycle which can [identify gaps] for collecting new and better data and lead to reports and interpretations” (Yeh & Inman, 2007, p.385). Although there is generally more data construction at the beginning of a GT study and more analysis toward the end, it is not unusual for an additional brief data collection to fill in and flesh out the final model (Glaser, 1971). Backman and Kyngas (1999) describe GT data analysis as a “discussion between the actual data, the created theory, the memos and the researcher. Such as discussion takes place when the data are broken down, conceptualized, and put back together in new ways” (p.149). In GT, data analysis is accomplished through three phases of coding: *open*, *axial*, and *selective* (Strauss & Corbin, 1990).

Open Coding. In open coding, “data are broken into discrete parts, closely examined, compared for similarities and differences, and questions are asked about the phenomenon as reflected in the data. We compare incident with incident as we go along so that similar phenomena can be given the same name” (Strauss & Corbin, 1990, p.63). At this initial stage of analysis, the data is reduced into manageable groupings of similarly coded content (Bowen, 2008). Open coding is usually performed line-by-line or phrase-by-phrase (Baran & Scott, 2010).

The data collection and transcription processes resulted in 1258 pages of text. Open-coding commenced with the first fully transcribed interview record and continued throughout the data collection process. As a part of this process, one- or two-word thematic codes were developed to represent the content of portions of each text. Often, portions of text were assigned more than one code. These codes were compared with one another and refined as additional codes were developed and subsequent transcribed records became available. An excerpt from an interview with one of the study participants is provided to demonstrate how open codes were assigned to data (See Figure 4). In this example, over fifty codes were used to describe thirteen lines of text; some codes were used more than once and some phrases were assigned multiple codes. In total, five hundred sixty-seven (567) open codes were created to describe the data, and included themes as diverse as *asking questions*, *helping others*, *job knowledge*, *rank*, *physical constraints*, and *resource management*.

challenge transition maintenance similarity Warrant Officer
 "... Part of my challenge was that I came from the maintenance company and it was all Soldiers and only three warrant
 officers in the company. The three warrant officers, one of them was a tech warrant so he grew up, was an E7 -- a
 Platoon Sergeant -- taught at the schoolhouse and he was so proficient and technical in his job that he moved into a
 technical warrants' job (which just makes him a more highly specialized individual and less of a teacher or a leader. And
 more of *the* expert that you talk to). The other ones were very senior flying warrants who had a very specific battalion-
 level mission and required zero babysitting because they made it. They had already proven themselves. They were
 there for a reason. And all the NCOs there were phenomenal. I learned a lot from them. They knew their jobs, they
 knew how to use their Soldiers. For me, all it was with them was orchestrating the training time and ... How much time
 do you really need for me to block off? How can I fight to not do this duty, understanding that it means we will get
 another one later. How do we work training plans? It was very different when I went to the flight company . We had a
 Company Commander who set conditions for things to be very difficult. And so, I said that my warrant officers were
 feral, because all they did was fly and they wouldn't do their duties, because they had never been held accountable,
 and they weren't about to now, especially in the last three months of deployment ..." (P037)

Figure 4. An example of open-coding using an excerpt from an interview. The open codes used to describe this excerpt are located above the relevant text and identified using red font.

Axial Coding. In axial coding, “relationships among categories are organized and further explicated, grouping them into more encompassing (key) categories that subsume several (sub)categories” (Fassinger, 2005, p.160). At this stage of analysis, the data is reassembled into meaningful categories. The process requires the researcher compare each code with one another, and to consider how codes are (or are not) related to one another and to begin constructing categories. Abstraction continues as categories are compared with one another. The researcher should interrogate each category by asking questions of “What?”, “When?”, “Where?”, “Why?”, “How?”, and “To what end?” (Wilson Scott & Howell, 2010). Axial coding will help the researcher to identify gaps and inconsistencies in the data, subsequently guiding theoretical sampling. Although

open and axial coding are two separate procedures, they often occur in tandem (Strauss & Corbin, 1990, p.98).

Open- and axial-coding occurred concurrently; while open coding continued for new material, previously developed codes were compared with one another and expanded, consolidated, or otherwise modified to ensure conceptual clarity. For example, the original open code *safety* was eventually split into multiple codes, differentiating between *safety behaviors* and *safety as outcome*. Safety as outcome was then combined with *effectiveness*, *efficiency*, and other codes to create the composite theme, *outcome*. The constant comparison of existing and emerging themes (codes) drew attention to discrepancies and gaps and thus guided the nature of subsequent conversations with participants. The insights provided by participants informed decisions to adjust codes. For example, it was unclear whether open codes like *brotherhood*, *bond*, *cohesion*, and *friendship* should be combined to form a more inclusive code, *unity*. The use of qualitative data management software allowed for text from one transcript to be combined and stored with all other excerpts assigned the same code. Given the number of open codes, this ability to sort and view text, regardless of source, by thematic code was instrumental in axial – and later, selective – coding process.

Selective Coding. In selective coding, “a core story is generated which is a brief narrative of the most important aspects of the data, subsuming all categories and articulating relationships” to the central phenomenon (Fassinger, 2005, p.161). The process of selective coding is akin to that of axial coding, except that it requires a higher level of abstraction (Strauss & Corbin, 1990). Additional data is sometimes required at this stage to fully develop categories.

Once I was confident that the broad axial codes were sufficiently saturated (i.e., no new information was being collected) and distinguished from one another, I used selective coding to address each of the three primary research questions. For example, to describe the process of resilience (RQ2), I first identified a set of broadly defined activities (e.g., *goal acceptance, monitoring, reflection*) and compared them to one another for similarity in function or purpose. Activities that served a similar function or purpose were then combined to form the primary phases of the resilience process. For example, *restoration* and *reflection* were combined to describe the *reset* phase of the resilience process.

Memos. In addition to coding, GT relies heavily on memoing. Memoing “occurs continually throughout the research process and provides a record of conceptual, procedural, and analytic questions and decisions. Memos capture the evolving ideas, assumptions, hunches, uncertainties, insights, feelings, and choices the researcher makes as a study is implemented and as a theory develops” (Fassinger, 2005, p.163). Memos are kept as a part of the data set, and should be expanded upon as the analysis proceeds and the emerging theory begins to take shape.

For this study, analysis followed the aforementioned coding and memoing processes. QSR International’s NVivo 10.0 qualitative data analysis software was used to organize and manage the coding process (Richards, 1999). Data analysis began as soon as possible after a session was transcribed, so as to better direct subsequent sampling (Sbaraini et al., 2011).

Credibility and Trustworthiness

Every effort was made to ensure the quality and credibility of the research and the resulting substantive theory. In particular, GT lends itself to triangulation of methods/sources, peer debriefings, and member checks (Morrow, 2005; Yeh & Inman, 2007). To ensure the rigor of this study, each of the aforementioned methods was used.

Triangulation. The study made use of multiple methods of data construction, across a range of sources. Each of these methods of data collection is likely to contribute unique information. For example, while individual interviews may provide detailed accounts of a participant's experiences, focus groups provide an opportunity for participants to interact with one another. Indeed, "if focus groups are seen as a 'social space' where participants construct their experiences based on how the discussion evolves and how participants interact, then an additional layer of data may be obtained" (Lambert & Loiselle, 2008, p.229). Thus, focus groups were used to explore and flesh out ideas as they emerged from individual interviews. In addition, this study also relied on data collected from multiple viewpoints, probing the personal experiences of Soldiers, as well as others' observations of unit performance (e.g., trainers, leaders). These sources contributed unique perspectives with respect to unit resilience.

Peer Debriefings. Trustworthiness can be established through a two-pronged approach to evaluation of the research process (Yeh & Inman, 2007), in which a group of experienced researchers evaluate the coding process (conduct *peer debriefings*) and a separate group of researchers attend to the high-level methods employed in the study (conduct *inquiry audits*). Peer researchers (i.e., Army research psychologists) independently reviewed and coded sections of transcripts. These efforts identified

possible alternatives for codes, categories, and developing relationships. Discrepancies were resolved through consensus. These evaluations helped to ensure that personal bias did not compromise the credibility of the processes used to build the substantive theory. “Thus, the findings, while accepted as the subjective knowledge of the researcher, will not be seen as merely a product of the researcher’s (observer’s) worldview or theoretical proclivities” (Bowen, 2009, p.307). In addition, members of the Dissertation Committee were invited to review the processes used to collect, code, and assemble the data and to provide feedback regarding the rigor of the research decision process.

Member Checks. A substantive theory should resonate with participants. Face validity can be demonstrated through a process called member checks, whereby actual or would-be participants have the opportunity to review the substantive theory to make certain it is a creditable and accurate account of their experiences. Member checks also afford the researcher an opportunity to clarify aspects of the emerging theory, when necessary. According to Lincoln and Guba (1985), member checks are “the most critical technique” (p.314) for ensuring the rigor of a qualitative study. In this study, focus groups were used to explore themes that were emerging from individual interviews. Information received from member checks was documented, used to direct future sampling efforts, and incorporated into the theory (Yeh & Inman, 2007).

Results

The current study was designed to address three primary research questions. First, the experiences of members of small military units were used to inform the specification of each of the five key components of the expanded team resilience framework (*RQI*). In addition, qualitative analysis was used to describe the iterative

process of small unit resilience (*RQ2*). Lastly, the resultant substantive theory was compared with the Army's current conceptualization of psychological resilience (*RQ3*).

Application of the Heuristic Approach (*RQ1*)

The expanded team resilience framework introduced in this study calls for the specification of a set of five key components, representing who (*of whom*), what (*to what*), why (*for what*), when (*at what time*), and where (*under what circumstances*) of the phenomenon, and is intended to guide the rich contextualization of team resilience. This foundational effort was designed to capture the breadth of participant experiences, and so these conditions were not specified *a priori*. Rather, the application of the expanded framework to the present study has been treated as a research question, *RQ1*, and the specification of its components has been constructed through discussions with participants (*RQ1a-e*)³. Each component of the framework is described in the following subsections.

Resilience of what? (RQ1a)

The first component of the expanded team resilience framework refers to the focal entity of interest, the team. Recall that, by a widely accepted definition, teams are collectives working interdependently toward a (set of) common goal(s) (Salas et al., 1992). Teams vary with respect to a number of factors, including the purpose/intended function of the team, number of team members, degree of collocation/distribution of team members, and relative permanence of team member tenure. While *the team* is presumably the focal entity of any study of team resilience, these and other differences among various team work arrangements may affect the degree to which research findings

³ Throughout the Results section of this manuscript, citations for direct quotes correspond to unique participant numbers.

can generalize from one study (team) to another (other teams). Therefore, until there is consensus regarding the conceptualization of team resilience and the respective effects of team work arrangements have been established, efforts to understand team resilience should begin with a detailed description of precisely what is meant by *the team* when a study like this is conducted.

Table 2. *Overview of primary small units sampled*

| Branch | Small Unit | # Members |
|-----------------------|--------------------|-----------|
| Air Defense Artillery | Fire Control Crew | 3 |
| Air Defense Artillery | Launcher Crew | 4 |
| Armor | Abrams Tank Crew | 4 |
| Aviation | Apache Air Crew | 2 |
| Aviation | Black Hawk Aircrew | 4+ |
| Aviation | Flight Crew | 4+ |
| Field Artillery | Fire Support Team | 2 |
| Field Artillery | Gun Section | 3-9 |
| Infantry | Squad | 9 |
| Infantry | Team | 4 |

Herein, *team* refers to a bounded group of US Army Soldiers working together toward a (set of) shared functional goals (e.g., tasking, mission). Participants were sampled from military occupational specialties (MOSs) within Combat Arms, as classified by the US Army Regimental System (USARS), and included members of small

units from Air Defense Artillery, Armor, Aviation, Field Artillery, and Infantry (See Table 2). These small teams share the common, overarching mission of Combat Arms: *to close with and destroy the enemy* (P107).

Resilience to what? (RQ1b)

The second component of the expanded team resilience framework refers to the disruptor(s) of interest. Herein, the term *disruptor* is used to refer to anything that has the potential to interrupt familiar routines or situations and thus affect – either directly or indirectly – team processes and team outcomes for some period of time. Due to the exploratory nature of the current study, specific disruptors were not identified or selected *a priori*. Rather, participants were asked to identify stimuli (e.g., conditions, events) that affect – positively or negatively – how team members work together.

Table 3. *Example disruptors as a function of category*

| Source | Exemplar |
|---------------|------------------------|
| Individual | <i>distraction</i> |
| | <i>attitude</i> |
| Compositional | <i>turnover</i> |
| | <i>contagion</i> |
| Relational | <i>disrespect</i> |
| | <i>competition</i> |
| Structural | <i>procedure</i> |
| | <i>team norms</i> |
| Situational | <i>physical threat</i> |
| | <i>weather</i> |
| Temporal | <i>tenure</i> |
| | <i>time urgency</i> |

Participants identified over 200 disruptors. Most disruptors can be characterized using broad labels such as: accountability, availability, change, competition, complexity, control, incompatibility, incompleteness, inconsistency, lack of fit, permanence, predictability, pressure, routine, safety, spillover, sufficiency, uncertainty, or violation/error. Comparative analysis of the disruptors identified in the current study suggests disruptors can also be classified using six broad labels representing (See Table 3): characteristics and behavior of individual team members (*individual disruptors*), specific combination of team member characteristics and behaviors (*compositional disruptors*), interactions among team members (*relational disruptors*), context that directs team member roles and how work is performed (*structural disruptors*), elements of the environments (*situational disruptors*), and issues related to the passage of time (*temporal disruptors*). Each type of disruptor is described in the following subsections.

Individual disruptors. Individual disruptors refer to individual team member characteristics, behaviors, or experiences that have the potential to interrupt familiar routines or situations for some period of time. Participants offered a number of examples of this type of disruptor, including distraction, lack of ability or effort, and negative affect. Individual disruptors can affect – either directly or indirectly – team processes and team outcomes.

Team members are simultaneously a part of other human systems. For example, Figure 5 illustrates the simultaneous membership of a single target individual in three systems; a work team, a family, and a sports team. External experiences can spill over into the work domain, affecting how individuals behave, think, and emote at work.

Participants described several instances where team member behaviors, cognitions, or emotions had an impact on teamwork and/or team outcomes. An infantry non-commissioned officer (NCO) explained that spillover from other life domains can affect one's attention and focus at work: "I can't have any of my Soldiers with internal conflict or things that are bothering them. Because your focus will always be split. I don't care who you are, you will split your focus to some degree and that detracts from your ability to focus on the task at hand" (P107).

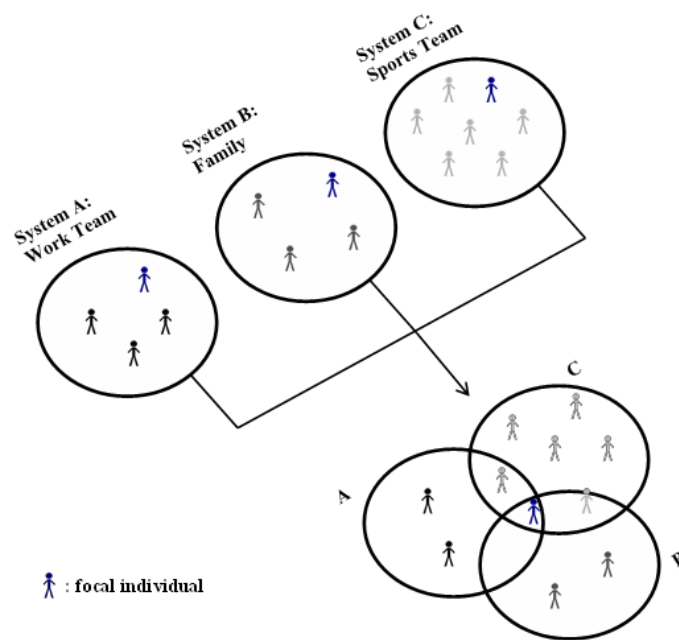


Figure 5. Exemplary illustration of simultaneous small group membership

External issues (e.g., divorce, financial problems) may affect interpersonal relationships and coordination at work. A Soldier who is upset or preoccupied with a personal issue may be negative, become physically or verbally aggressive, or try to isolate himself from other team members. In addition, a Soldier who is preoccupied or otherwise disengaged is unlikely to contribute his/her share to the collective effort.

Failure to fulfill one's role can increase the demands placed upon other team members (e.g., increased workload) and/or shift valuable resources away from the team. For example, a NCO from Field Artillery explained that the time he dedicates to address an individual team member's issues or concerns is time he cannot spend addressing the needs of the larger group. He found this particularly upsetting when he perceived no legitimate cause for the individual's disengagement or that the individual was engaging in purposeful misbehavior. He explained, these Soldiers may not "realize it is taking my time either away from my family or my Soldiers to write [a counseling statement]. If I make a Soldier show up fifteen minutes prior to work, I have to be there, too. And it just builds up. And it's, like, to the point now, you get so many of those cases that you don't have enough time to do your job as an NCO. You don't have time to mentor the other Soldiers and teach them their actual job. It's ridiculous, in my opinion. I got more words for it, but I will be polite" (P082).

In polite conversation, individuals who are disengaged from the team task for any reason may be referred to as "weak links". Some participants suggested that it is unrealistic to expect team members to remain focused on individual and team tasks at all times. An infantryman explained that the assumption is, "You just do your job and stay in your lane and then everybody will have the desired outcome. But it is not realistic. It just isn't. Some days, you are going to be in The Zone. You are going to be The Man. And you will be picking up everybody's slack. And then other days, [you need] the help. I have days where I am not feeling it, I am not in The Zone, I am not motivated ... And [I] need those guys to pick [me] up and pick up the slack" (P102).

Identifying as a part of a team can contribute to willingness to engage in helping or compensatory behavior. As one Soldier from Field Artillery stated, “You’re a team, that’s how you look at it. ‘I got his back. He’s got mine’” (P057). But while some team members may be willing to compensate for a disengaged team member, others might see him as a liability and a threat to team cohesion or their own or others’ safety. Indeed, an infantry NCO suggested, “What really makes people not cohesive when working together is when one person decides that they don’t need to do anything and will just stand there and watch and not help” (P119). As one pilot declared, “If you’re not a functioning member of that cockpit then I don’t need you. You’re going to kill somebody. You’re going to kill me because I am in that cockpit with you. If you’re not pulling your weight ... I’m going to take us home and then I am going to make sure that I don’t fly with you anymore. I am going to make sure that you’re watching the radio. Two flights in a row and ... I’m not going to fly with you” (P004).

A Soldier may perform his task or cooperate with his teammates, but approach the effort with a negative attitude. Many participants noted that a negative attitude could be detrimental to teamwork, and suggested that a negative attitude is contagious and can spread quickly through a team. An infantry NCO said: “This Soldier, all he does is put it down. He is negative all the time. He doesn’t want to be there. He doesn’t want to do this. He has something to say even when you are doing the fun stuff! Always saying something, like, ‘This is stupid’ or ‘I don’t know why we are doing this ...’ Now you got this Soldier, ‘I don’t know why we are doing this, this is stupid.’ And the next one, ‘I don’t know why we are doing this, this is stupid.’ And the next one ... I mean, it can leave your team and jump to another platoon and hit somebody else. That person could

poison the whole thing. He could ruin the entire company. They will feed off of each other. It is like a disease. Ebola” (P120).

Awareness of an individual team member’s personal issues can also cause distraction among other team members. For example, an infantryman explained, “It sounds super cliché to say, but, you know, cheating spouses, financial difficulty ... you try to help that guy out, but there is a certain self-projection into that problem. Like, if a guy has his wife cheat on him, everybody is trying to help that guy – there is that level of empathy there – but in the back of their mind, ‘Is this happening to me? Are there indicators that I should look for?’” (P109).

Perhaps surprisingly, participants also indicated that even an engaged team member can become a liability. A pilot explained how overconfidence in one’s abilities can become a problem for an aircrew: “You can get comfortable with the helicopter to the point where you are just like, ‘Oh, yeah, I am invincible with this.’ [But] if you try and demand too much, it will start to fall out of the sky. You can recover it, but it won’t be fun for the rest of the crew” (P030).

Compositional disruptors. Compositional disruptors refer to some collection of attributes among team members that has the potential to affect familiar routines or situations for some period of time. Participants offered a number of examples of this type of disruptor, including the loss and replacement of team members. Compositional disruptors can affect – either directly or indirectly – team processes and team outcomes.

Changes in team membership can occur either expectedly or unexpectedly, as in cases of promotion and attrition, as well as health-related absences and loss. Personnel shifts are especially prevalent in aviation. A pilot explained that in an effort to ensure no

personnel exceed established limits for flight time and that all receive ample rest periods, individuals assigned to flight crews were frequently rotated, sometimes daily: “Rarely did I fly with the same person more than two times in a row. I might fly with one person on a Monday and then fly with them again the following Monday, but usually, every day it was somebody different” (P027). While participants explained the frequency of changes to air and flight crew personnel were due, mostly, to restrictions on flight hours, shiftwork, and mandated rest periods, many indicated that battle rostering (i.e., pairing crew members together for extended periods of time) contributes to team member complacency. Overfamiliarity with team members may lead to overreliance on one another and/or reduced vigilance.

The loss, replacement, or gain of a team member can affect team processes as team members learn to renegotiate their roles and/or redistribute work demands. An NCO explained, “If somebody leaves, then the guys left back might just have to split whatever his work was” (P007). A shift in team membership may leave team members struggling to recognize available resources and to make effective use of them in their strategies for managing the disruption. In addition – and similar to individual disengagement, as described in the previous subsection – compositional disruptors can affect morale. The loss of life, in particular, impacts morale. A NCO from Field Artillery explained, “If we’re overseas and – like, we’ve had deployment where some will get killed ... that’s the biggest thing that is going to depress the guys. That is going to bring everyone down. I think every single guy is down at that point” (P085).

Many participants suggested that newcomers are treated as outsiders until their proficiency level and/or value to the team has been sufficiently demonstrated to other

team members. A pilot explained that a newcomer affects the workload of those who are a part of the crew, especially the more experienced pilot: “Well, like, say I’m in the backseat. If it’s a new guy up front, we will try to coach him on things, like ‘Go check this out. Check this out. Go over here.’ If it is a more senior guy, someone that you have known for a while, you don’t have to say any of that. You don’t have to work their cockpit as well as yours. It takes some of the workload off. If you are working with a real junior person, you feel like you have to manage both seats” (P032). Team members are likely to be skeptical of newcomers even when the newcomer has been fully trained and has past experience as a functioning member of another, similar small unit. An infantryman recalled, “I moved to a different company. They don’t know nothing about you. They pretty much treat you like you are new. You pretty much have to prove yourself and show that you know what your job is” (P101).

Relational disruptors. Relational disruptors refer to team members’ interactions with one another and other persons not a part of the team that have the potential to affect interrupt familiar routines or situations for some period of time. Participants offered a number of examples of this type of disruptor, including disrespect, conflict, competition, and perceived inequities. Relational disruptors can affect – either directly or indirectly – team processes and team outcomes.

Unit assignments are largely based on military occupational specialty (MOS). Each Soldier has a primary MOS (e.g., infantryman), the determination of which is based on a host of individual characteristics (e.g., ASVAB score), personal interests, and staffing needs. Individuals perceive others of the same specialty as more similar to themselves than persons from other specialties. A NCO from Air Defense Artillery

explained, “Crews think that they are better than each other. And then, no matter what crew you are on, you are going to say that you are the best” (P052). Perceptions of dissimilarity can incite disrespect, conflict, and/or competition – both within and between teams.

A focus group composed of five infantrymen described a series of negative interactions with individuals from other occupational specialties while on deployment⁴. As one infantryman explained, “We have the dirtiest uniforms on the [Forward Operating Base]. So, when we walked around places, people knew, ‘This [expletive] at least works.’ And they don’t care. The care level from the POGs that don’t do anything – they go around eating cake, playing basketball, while you are out [expletive] climbing Mt. XXX for three days ... You come back and you see the smiles on these people’s faces. You are out there busting your [expletive] and these people are inside, having fun, and then there is no respect for you ...” (P113). Negative interactions occurred, for example, at the chow hall and at the gym, when infantrymen who had just returned to the confines of the FOB, tired and hungry, or were about to go outside the wire and needed to use the facilities, were not given immediate access to those resources. As one infantryman said, “I go to the gym and I can’t get a [expletive] bench press because [expletive] cook is working out. ‘Dude, I just got back from a three-day [expletive] mission. I want to [expletive] work out. You do [expletive] nothing all day. Give me this [expletive] bench.’ I think everyone has had that issue” (P112). Indeed, the other Soldiers in the focus group nodded in affirmation and offered additional examples of ways in which others failed to respect their efforts. One infantryman described how

⁴ Infantrymen were especially likely to self-identify as a select type of Soldier and to exaggerate differences between themselves and Soldiers from other branches (e.g., Aviation) and regimental divisions (e.g., Combat Support), referring to *all* non-infantrymen as “POGs” (people other than grunts).

living among other infantryman was different than living on a FOB where Soldiers from many MOSs were stationed: “We were on a [Company Operating Base]⁵ and it was one platoon rolled out, one platoon stayed in. We had two platoons on our COB. If we just got back from a mission, the other platoon that didn’t go out, they knew, ‘We are not getting in this [expletive] line’ or ‘we are not going to the gym until these guys get their [expletive] done.’ I don’t care how hungry I am. If XXX just got back from a two-day mission, he is eating before me” (P115).

Diversity and perceived dissimilarity within the small unit can cause problems, as well. For example, members of both Artillery branches pointed to perceived differences between the job functions of those assigned to monitor fire (e.g., Fire Control crew, Fire Support team) and those assigned to maintain or move the equipment (e.g., Launcher crew, gun section). The former were often perceived as being more intelligent, the latter as more physical. As a Soldier from Field Artillery explained, the combination of MOSs can lead to “a lot of competition. We’re [a specific MOS]; we hump these 100 pound rounds in the field. So, we kind of make fun of the [other MOS] – because all they do is push a button. It’s a little joke that we have going on” (P057). While humor and banter were offered in the course of other discussions as ways to build camaraderie, drawing salience to differences in job functions or personnel capabilities – even in jest – can have consequences for team dynamics. A NCO from Air Defense Artillery recalled, “There shouldn’t be any, like, animosity between the squads. You know what I am saying? We’re a platoon. It should be, ‘Oh wait, you need some help with something? Hey, no problem.’ But down range, it really got to the point where, like, the competition ... it

⁵ The personnel on this particular Company Operating Base [COB] were all infantrymen.

wasn't even competition anymore, it was some crazy trash talk. Literally, there would be times where we would be, like, at each other's throats, ready to fight" (P052).

Conflict between two team members can result in both – and potentially other – team members becoming distracted from the task at hand. A trainer from the National Training Center explained, "Maybe one person did this and wasn't supposed to do it this way. So, you'll start hearing the bickering between them. And then they are not even focused on what is going on. They're focused on each other. They're bickering ... which is causing frustration between them ... which is causing inefficiency ... which is spreading. We know negativity spreads like a cancer. It goes quickly throughout a group ... just like a cold" (P002). A member from Air Defense Artillery explained, "One individual would start with another, start a fight. Next thing you know, the whole group doesn't want to see each other" (P050). A pilot explained, "Sometimes it even spreads out further. We have warrant officers in my company right now, they don't get along – at all – and when those two are around each other, there is so much friction in the air you could cut it with a knife. You can feel the tension. And it's between those two and then everybody else feels it around them" (P021). A crew chief explained, "It's just like any group of people that work together. There is always going to be head butting situations where somebody thinks they are doing the right thing, but they really are not, and then somebody speaks up and it just kind of, you know, causes that big argument and all. I have seen it a few times. We try to minimize it. Especially with us in the back, we'll be like 'Both of y'all are dumb, just shut up. He was right and you were wrong.' We try to keep all of that kind of stuff minimized" (P031).

Team members share personal histories with one another. To the extent that these personal histories are grounded in similar contexts (e.g., deployment), individuals compare what they hear from other team members to what they have personally experienced. For example, an infantryman explained that social comparison can lead to competition. “The army is ... winding down. We pulled a lot of security [on the most recent deployment]. We weren’t kicking down doors or anything like that. We were pulling security. And I guess the biggest part, for me, that I dealt with was hearing a lot of the older guys’ stories, ‘Oh, well, when I went, we were being bad ass and doing this and doing that.’ So, now I feel like little brother who is trying to live up to big brother’s, you know, football career. You know what I mean? Yeah, it’s just a competitive kind of thing” (P102).

Perceptions of inequity, particularly in interactions between leaders and subordinates, can affect teamwork. An Officer from Aviation explained, “It could be a violation of fraternization. Let’s just say that a Company Commander is friends with another Lieutenant in another company but a huge jerk to everyone around him. Really nice to that person. Why are they nice to that person? Is it a professional relationship? Well, they have drinks every Friday. That’s probably frat” (P037). Similarly, a NCO from Air Defense Artillery said, “You’ve got to be equal to everybody else. You can’t just treat him special because he’s your buddy. That’s the wrong thing to do” (P042).

While disrespect, conflict, competition, and inequities can negatively impact teamwork, team members can also provide encouragement and support for one another – which can boost both individual task work and teamwork. A NCO from Field Artillery reflected on how Basic Training taught him to value how team members can strengthen

one another: “I did everything to the best of my ability. And once you complete it, you think that you are done, but they are going to throw you back into the same thing and there is going to be more, and more, and more. And they just wear you out. Completely. And you think that you can’t go any further. And that’s where your partner on the left on and the right come into play. And they push you. They can complete it ... When you crawl for 300 yards, they haven’t hit muscle failure but you have, and you just want to say, ‘I quit. I give up.’ The person to your right and your left is just going to say, ‘Keep pushing. Just keep pushing.’ And that builds you up” (P082).

Structural disruptors. Structural disruptors refer to aspects of the structure of the job itself that have the potential to interrupt familiar routines or situations for some period of time. Participants identified several structural disruptors, including operating procedures/standards, norms, support systems, and command climate. Structural disruptors can affect – either directly or indirectly – team processes and team outcomes.

Team dynamics can be negatively affected when members must work together under high workload conditions. Soldiers recounted many instances where team members who felt overworked became irritable or disengaged from their team members. Under these circumstances, team members may become careless and/or less likely to take on additional duties/responsibilities like providing help to a struggling team member. For example, a Soldier from Air Defense Artillery explained, "When we are overworked, we are ready to go, we don’t really feel like doing anything extra, we don’t feel like going the extra mile at all, we don’t feel like being bothered with anybody. Being overworked affects our small group and our attitudes a lot. We all feel it. When we are overworked, we are like ‘What is the quickest way to do this? I don’t care how it’s done, as long as

it's done.' 'I don't care how you get yours done, as long as I get mine done.' It becomes selfish" (P074).

Team members think, act, and feel in a common context and establish norms for team member behavior (Adler, 2013). Because team members are exposed to similar demands, they may develop similar ways of evaluating and responding to demands. Embedded in these norms are expectations about how to behave under certain circumstances. Team norms affect how teams perceive and manage potential disruptions (Orbist et al., 2010), as well as how teams ultimately evaluate success (Barrios, 2014). A trainer from the National Training Center explained, "We've got one group that is highly motivated and the newcomers kind of just fall into step with the systems that are in place. And then we've got another group of unmotivated individuals and any incoming personnel that are introduced into that atmosphere, their motivation to perform quickly deteriorates" (P007). A strong sense of teamness among team members can make it difficult for new members. This may be especially true when on deployment, where team members not only work together but also live in (sometimes very) close physical proximity to one another. As a member of Air Defense Artillery explained, "When you deploy, that's all you see every day. That's all you interact with every day. You pretty much become really tight. When new people come in, it is pretty hard to penetrate that little group" (P050). For example, norms can affect how team members understand directives and communicate with one another.

Teams can develop a shared language, deviations from which can affect how well team members understand one another. For example, a pilot recalled, "...best examples I could give you – it changed about six or seven years ago – before you went onto the

runway, you could just get on the runway and wait there to take off. It used to be ‘Taxi position and hold.’ And then one day it changed to ‘Line up and wait.’ So, then, everyone is like, ‘Line up and wait? What are they talking about?’ Tower is trying to get you to move, but you have no idea what they are talking about” (P029).

Situational disruptors. Situational disruptors refer to external conditions that have the potential to interrupt familiar routines or situations for some period of time. Participants identified several such disruptors, including the experience of being in an unfamiliar place (particularly during deployment), extreme weather conditions, working in confined spaces, and threat of danger to self or others. Situational disruptors can affect – either directly or indirectly – team processes and team outcomes.

Participants identified several disruptors associated with being in the field – while either in training or on deployment – and the potential for situational disruptors to affect morale. For example, an NCO from Field Artillery explained, “And it is hard sometimes, because when you are in the field for three weeks and it is 110 degrees, you haven’t taken a shower in two weeks and you’re dirty and you’ve been away from home and family for that long, it is sometimes hard to keep people motivated” (P080). Pilots explained that landing in dust or on unlevelled terrain, at night with little or no illumination, in windy or harsh weather conditions is more difficult than landing in clear or on level terrain, on a clear day. Reduced visibility can cause uncertainty. For example, one pilot explained, “Coming down to a [hot landing zone], you see windows and people who could possibly pull out an RPG and shoot you. You never know what is going to happen. You can’t see everything” (P034).

Some environments require individuals to work very closely together, as in a tank where crewmembers may be confined together for weeks at a time. Participants frequently commented on living arrangements overseas, while on deployment, which were associated with lack of privacy and limited personal space. An infantryman explained, “You get over the privacy thing, but personal space ... Sometimes you just want to get away from people and there is nowhere to go. Where are you going to go? You can go to the [dining facility] and you go to the gym and you go to the USO, but at the end of the day, you are sleeping right next to a guy that you might like or you might have nothing in common with and he gets under your skin. People have different habits and stuff. Like, you know, one guy might be a really light sleeper and one guy might like to stay up all night on his iPad with his girlfriend ... You get issues like that all the time” (P106).

Temporal disruptors. Temporal disruptors refer to how time has the potential to affect interrupt familiar routines or situations. Participants identified a number of different temporal disruptors, including downtime, waiting and delays, and time urgency. Temporal disruptors can affect – either directly or indirectly – team processes and team outcomes.

Time spent not actively engaged in a task (e.g., waiting for a directive) can affect morale. A tanker said, “If you let us sit too long, we get complacent. We get into the mindset, “OK, they forgot about us”” (P077). Long durations of repetitive activity can also affect team member motivation and team morale. An Officer from Aviation said, “When you do the same exact thing in the same place for a year at a time, or any amount of time, really, it will eventually reach that point where it’s ... not valued any more. It’s

just ‘this is the same thing that we are doing every day.’ And it got old after about six or seven months, you are just at that point where you know exactly what is going to happen again tomorrow and it is the same thing, same issues, same problems, same things you have to problem-solve and work out every single day" (P035). An NCO from Air Defense Artillery suggested morale can also be negatively affected by spending more time on a task than originally expected: “Yeah, like field training exercises where we are away from our families, friends, dogs, we set up as if we were deployed, we have to get our certifications, our equipment will break. It affects our performance. We can fail and have to stay in the field longer. That can affect morale. Whether it’s having hot chow or coming back to take a shower” (P090).

In addition, time is correlated with experience. A trainer at the National Training Center talked about how teams that have not had ample opportunity to work together can struggle managing demands in the training environment. “They come here to the culminating training event and they have a new staff, a new team. It creates a lot of problems, where there is not a lot of trust among the individuals and the staffs and the commanders. Because they haven’t worked together very long” (P006). Experience working together can affect teamwork and outcomes.

Resilience for what? (RQ1c)

The third component of the expanded team resilience framework refers to the outcome(s) of interest. An outcome is the culmination of coordinated efforts that evolve over time; and thus, an outcome represents a meaningful emergent state. Because teams are formed to accomplish specific goals, teamwork is purposeful and directed toward a (set of) specific end state(s). Although teamwork is often evaluated in terms of

performance metrics, participants identified other important team outcomes, including: effectiveness, efficiency, improvement, readiness, safety, satisfaction, and unity. Each outcome is described in the following subsections.

Effectiveness. Effectiveness is concerned with goal accomplishment. In the military, the criterion/ia for most taskings and missions is set as a standard. Effectiveness, then, is demonstrated by meeting or exceeding standard. As a member of Air Defense Artillery explained, success is determined by "... sometimes exceeding the standards and sometimes barely passing" (P050).

Assessing performance in relation to a predetermined standard suggests that effectiveness is a dichotomous outcome: A team either meets standard (effective) or does not (not effective). A trainer at the National Training Center explained that sometimes the goal is no fail, cannot fail. A medical evacuation is a succeed/fail scenario, "because we have to get somebody to the hospital. It has to happen or they are going to die" (P021). On occasion, a directive can be broken into parts. In these instances, a small unit can prove effective with respect to one (set of) subgoal(s) and not another. The trainer explained, "We have tasks and within those tasks there are standards and you can fail to meet those standards. Like, your hover height, plus or minus a foot. Or your drift, plus or minus ... And we have evaluations all the time. So, it's not like one day you do it and then 'you're good' and then the next day you do it, 'you suck'. You're proficient enough. Or you try to be as proficient as possible" (P021). This description underscores that some variability in performance may be afforded the small unit and effectiveness may be judged with respect to a single outcome but also with respect to a general trend in performance over time. However, comments framed in terms of "exceeding the

standards” suggest that stakeholders may assess effectiveness along a continuum and that, when compared to one another, a team can be more or less effective.

The criterion/ia by which a small unit is assessed may change as a function of context and/or the person(s) making the assessment. Leaders and other stakeholders (e.g., trainers), for example, can determine how strict they want to be with respect to meeting standards. To the extent that teams are aware of the desired end state and the standards or criteria by which they will be evaluated, team members are often in a position to gauge their own effectiveness.

Effectiveness (success) is generally perceived as a positive end state. However, in certain contexts (e.g., training), others may actively attempt to elicit small unit failure. In training, for example, failure is seen as a driver of self-reflection. When a small unit is not successful, they should endeavor to identify and recognize their own deficiencies. As a trainer at the National Training Center said, “... we wanted them to fail, because in order for them to get more feedback from us, we had to see where the deficiencies were” (P011).

Efficiency. Efficiency is concerned with time taken to accomplish a tasking or mission. A tanker explained, “In the Army, time is everything. You expect someone to move at a certain pace” (P075). Small units that accomplish a tasking or mission within an expected timeframe are efficient. However, some small units can deliver a product or accomplish a tasking much more quickly than their counterparts. Therefore, efficiency, like effectiveness, can be conceptualized as both a dichotomous variable (efficient, not efficient) or as a point along some continuum.

Small units may not often be in a position to evaluate their own efficiency – or, at least, not directly. Obviously, when a directive specifies a specific suspense or timeframe, small units are likely to know if they have met expectation. Otherwise, small units may estimate their own efficiency by making comparisons, either with their own previous performance or with the performance of other small units. However, the latter may yet prove difficult, as one pilot explained: “... because the companies are very segregated. Unless we are doing those big scale training events, you won’t actually interact with or see the other companies that often. But the senior leadership can see how much more efficient our company is at accomplishing things” (P028).

Efficiency may be valued less than other performance-based outcomes. A NCO from infantry explained, “You may have to tweak a strategy a little bit and it may not be as efficient, but it will still get done. And at the end of the day, the end result is really what you are looking for” (P116). In addition, efficiency is dependent upon effectiveness – a small unit can be effective, but not efficient; however, I found no evidence that a small unit could be efficient, but not effective.

Improvement. Improvement implies positive change over time – but not necessarily effectiveness (success) – with respect to some starting point. The Army has a culture of continuous improvement and several participants said things like, “I think with anything there is always room for improvement” (P030). Trainers emphasize this outcome, as a trainer at the National Training Center explained: “It is ultimately about getting better and learning from your mistakes” (P006). Unlike other team outcomes (e.g., effectiveness, efficiency), improvement may be in the eye of the rater. Judgment and interpretation of improvement is likely more subjective than judgment and

interpretation of effectiveness, efficiency, safety – all of which are associated with some specific criterion or standard.

Readiness. Small units demonstrate readiness by having resources properly maintained and available, including team members being psychologically and physically fit for duty. Similar to effectiveness, the Army has specific ways to evaluate and track unit readiness. For example, a pilot explained how aviation units are evaluated with respect to operational readiness: “Once a year, we are supposed to do an aviation resource management inspection. Basically, civilians and outsiders will come in and inspect the unit on how ready they are to go straight into combat. It’s a really detailed inspection. They go over everything that a unit is supposed to maintain and keep up with. A lot of it is safety. Could be, like, personnel records. They look at the flight operations department, make sure all of the flight hours are up to date. They look at the maintenance records, make sure that all of the appropriate records are – the maintenance of the aircraft is up to date and complete, so that you know you are flying a safe aircraft” (P028). Another pilot explained, “We had twelve, thirteen aircraft and each one of them – like, how many hours they have available to fly in between maintenance and stuff like that – like, when we have aircraft that breaks hard, how fast we got the aircraft back on – that kind of operational readiness for maintenance and aircrew” (P024). Some Soldiers felt that readiness put small units in a better position to prove effective. For example, a NCO from Field Artillery said, “As artillery men, if we can’t get from Point A to Point B, where, say, the gun is, and I don’t have enough guys to carry enough rounds from the bunker to the gun, and load it to shoot it in time. We can’t defend ourselves. Or we can’t defend other people that are going to be in the area where the bad guys are” (P082).

A small unit can be effective, accomplish a tasking or mission, and not be ready to take on the next directive. Effectiveness is about whether or not a goal was met. But readiness is about whether or not prepared to work toward a goal. A trainer from the National Training Center explained the difference between effectiveness and readiness “...in terms of ‘I didn’t accomplish my mission’ or ‘I did accomplish my mission’ and ‘I accomplished my mission but I have no combat power left. I have to regenerate combat power for the next fight’” (P005).

There is an attitudinal component to readiness. Motivation, the willingness to expend effort, is subsumed by readiness. A trainer at the National Training Center said, “You can tell by their attitudes. They just don’t want to do anything anymore. They just completely give up. They say, ‘OK, we’re going to die, what do we care?’” (P013). For this reason, psychological readiness may be more difficult to assess objectively.

Safety. Safety is concerned with the protection and preservation of resources – human, equipment, etc. Safety is most typically inferred through the absence of loss or damage to resources, but may also include improvements to well-being or functionality. Safety was regarded by many participants as the most important outcome, perhaps because of the nature of their work. A trainer at the National Training Center said, “Safety ... is paramount in everything that we do – or it should be” (P001).

Satisfaction/morale. Satisfaction is an attitudinal outcome concerned with subjective feelings of a job well done. An infantryman explained, “When me and the rest of the mortar section go out for a training and actually get to shoot rounds and stuff like that ... We are good at our job. And that is what makes that day worth it and any day following it. Being able to do the job and having a little fun, getting to practice a little

bit, that is what brings me closer to the rest of the guys” (P111). Of course, satisfaction can relate to both the result and also the processes followed to get there. Small unit members can be satisfied with end result but not with how the job was accomplished. As a pilot explained, “I think that we bit off more than we could chew. I mean, we were able to take care of everything in terms of mission and maintenance and everything. I would say [the struggle] really brings everyone down, it really takes everyone down” (P032). While there may be behavioral indicators others can use to infer satisfaction, the small unit is the best judge of its own morale just as the individual is in the position to judge his own satisfaction.

Unity. Unit members can be satisfied with the work that was accomplished, and they can also have positive responses to the individuals with whom they work. The Soldiers used different terms to talk about their relationships with unit members, like cohesion, bond, brotherhood, unity ... and there are subtle differences in how these terms are used. Unity is concerned with having a positive group identify, a feeling of belongingness. Unity is about unit members not just wanting to do the job but wanting to do it together. Unity affects willingness to provide support to team members. Failure to achieve or loss of unity can lead to turnover and attrition. For example, an Air Defense Artillery crew member said: “I’m getting out. I can’t put my finger on it, but – I kind of feel almost a little betrayed by my unit” (P052). Those who aren’t perceived as part of the team may be ostracized. As a Field Artillery Sergeant said, “We have places for them. It’s called the gym, handing out towels. And it’s called the command drivers. Head count. KP. That’s fine, if you don’t want to be part of the team, go over there and peel onions. And when your date is up, don’t come back” (P069).

Participants repeatedly indicated that unity was related to effectiveness. A NCO from Field Artillery explained, “You want to build that bond, that family bond ... you build that big bond and you are able to get the mission done and everything” (P081). Although unity is not required for effectiveness, it may boost effectiveness. Another NCO from Field Artillery said, “I have seen people who didn’t like each other who still could understand that it was their job to perform, their personal issues didn’t go into the tank. And they were able to push through it, in terms of switching it off and working together. But even then, I don’t think that they perform as well as a crew that is really, has a real sense of unity, or esprit de corps, of your platoon” (P080). On the other hand, unity does not necessarily mean the team wants to do the job. Members can be happy as a collective but not be satisfied with the job or not collectively engaged with the job.

Resilience at what time? (RQ1d)

The fourth component of the expanded resilience framework refers to a focal period of time. Fluctuations in states can be measured in time – this can be a single, discrete measurement. But conceptualizations of resilience as a process require multiple observations made over time. With respect to teams, this can mean successive measurements are taken within a discrete performance episode or an outcome is measured over multiple performance episodes. A trajectory represents the plotted values of these repeated measures. Simple trajectories are conceptualized as a function of change (slope) between start and end points and simple trajectories can be combined in a number of ways to describe more complex temporal patterns. Participants identified four simple trajectories, including maintenance, growth, decay, and transformation.

Maintenance. Maintenance is reflected by consistent performance (no change) over time. A trainer from the National Training Center suggested, “Improvement is always good but I mean just being able to maintain – especially with the turnaround, with us moving around and things always changing, supplies and regulations always changing—not so much being perfect but maintaining it” (P014). A team can maintain performance levels below, at, or above standard. For example, a team may continue to fail to meet standard over time. Another trainer from the National Training Center explained, “I have heard a lot about how, you know, some units will go out and do bad the first time, but each time they progress and do better. But then you hear some of these [other trainers] talking, ‘yeah this one Captain running his team, he just couldn’t seem to get it right’. And, you know, they just kept failing, time and time after time. Never improved.” (P016). Therefore, maintenance is neither good nor bad in and of itself but, rather, must be assessed in terms of some specific criterion or set of criteria.

Growth. Growth/improvement is reflected by positive change over time. A trainer from the National Training Center explained, “To leave here from being at this level <<hand gesture>> to being higher <<hand gesture>>” (P001). Teams can continue to grow or make progress without necessarily meeting standard. An Officer from Aviation described the change in small unit behavior, “I didn’t fix them all the way, but I made them better” (P037). Likewise, teams can continue to improve even after having met standard. A team that has improved with respect to some starting point may still not reach the point of being effective. Therefore, similar to maintenance, growth is neither good nor bad in and of itself.

Decay. Decay is reflected by negative change over time. A pilot explained, “You can beat somebody down to the point that there is no way they could come back. Every unit will have its breaking point. You can do so much to them that they are just going to be like, ‘forget it, we can’t do this right. Every time we try to do something right, we can’t.’ I have seen units get tasked out so much that they just continually get beat up. They are just like, ‘you know what? We don’t care’” (P021). To the extent that team success can fall along some continuum (e.g., more or less effective, more or less efficient), decay is neither good nor bad in and of itself.

Transformation. Transformation is a change in state. Perhaps the best example is an aviation unit whose mission it is to fly medical evacuations. When the weather is severe, and it is unsafe for the pilots to fly the aircraft, then the pilots change their status to unavailable. If the status were to remain available, the mission would fail – or, potentially, succeed but only after a very tumultuous flight. But if the status changes, they are no longer working on the mission. Their state has changed. Transformation is not easily mapped on an x-y axis and so is different from the other simple trajectories⁶.

Complex Trajectories. The simple trends can be combined to represent a multitude of complex trajectories. For example, a team might experience decay after a period of maintenance – for example, in the case of burnout. The return to previous maintained levels of performance (commonly referred to as “recovery”) would require a third slope, growth. Participants endorsed the notion of recovery. As a crew member from Air Defense Artillery explained, “We have lots of multi-tasking. We tend to skip over something, which causes us to fail. But we just learn from that and just come back

⁶ The potential relevance of transformation with respect to team resilience is discussed with respect to Research Question 2.

and pass it” (P047). A few participants suggested that the speed with which post-decay growth occurs may be important. A pilot said, “At some point, everybody experiences negative motivation and those that can recover from it quickly and figure out the system ... will do better in the long run” (P027). Indeed, post-decay growth can bring teams to new levels of performance, surpassing pre-decay levels. A NCO from Field Artillery said, “... we are always able to regroup and come back stronger” (P085).

Resilience under what circumstances? (RQ1e)

The fifth component of the expanded team resilience framework refers to the circumstances under which the team will manage disruptor cues, disruptors, and/or disruptions. The role of context was alluded to earlier when I discussed how certain outcomes may be more/less relevant in certain contexts (e.g., training vs. mission). Context is something that can be expected to change – for different types of teams, across different time periods. The study of a relationship, for example between a specific disruptor and disruption or a disruption and an outcome, for a specific team is likely to be contextualized through the description of a very specific set of circumstances (which can be classified as either protective/promotive or risk/vulnerability factors, depending on whether their presence is associated with a boost or a dip in team outcome, respectively). However, a more general approach to the study of team resilience requires identification of a broad array of contexts which may affect the process of managing disruption. For this reason, context is treated herein as that which affects the overall process of managing disruption, rather than a specific influential factor associated with that process⁷. Participants frequently made comparisons based on the following contexts: Big

⁷ Protective/promotive and risk/vulnerability factors that affect specific elements of the process of managing disruption will be discussed in relation to RQ2 and labeled “influential factors”.

Army goals, the interpretation and enforcement of standards, and the Army Force Generation (ARFORGEN) cycle⁸.

Big Army goals. The Army's major objectives change over time, which can affect operational tempo (OPTEMPO), as well as personnel and staffing needs. For example, participants contrasted experiences during the surge with those of the current draw down. During the surge, the Army needed a lot of personnel to fill roles. During the current draw down, the Army has fewer roles to fill and thus needs to remove personnel. The change in Big Army goals has had an effect on team dynamics, particularly in terms of unity and sense of teamness. "With deployments winding down, the Army winding down on Soldiers, they are looking for any little reason to push people out. And it pretty much keeps you on your toes – but in a negative way. I don't know about these guys, but personally, that's just not how I want to spend my career" (P111).

Big Army goals adjust as a function of changes in threat and/or the nature of the enemy. For example, a trainer from the National Training Center (NTC) said: "When I first joined we were gearing up, still, to fight the Russians and cold war. And then 9-11 occurred and the Army and everything totally and completely changed. Well, they are totally different fights. Gearing up to fight a conventional military opponent versus an insurgent opponent? Different skills for those fights. Well, now after ten years, we're geared up, we're good now. We are [great] at fighting insurgency and training and gearing up for it. Well, now we've come to the pendulum is trying to come back, swing back the other way and we're trying as an Army to find that happy medium between the two and that's why we actually call the current threat environment that we are supposed

⁸ Participants also speculated about differences between branches (e.g., aviation, infantry), but too few could speak from experience, thus not discussed here.

to replicate here at NTC a ‘hybrid threat.’ We are basically, supposed to be able to fight, simultaneously, the Russian cold war army and Al Qaeda. At the same time. So, we don’t lose all of those hard fought skills and experiences that took a lot of blood and sweat to earn that experience ... but at the same time we remember how to fight the conventional military. So that way, if the call does ever come – which God willing it never does –we are able to fight that kind of conflict” (P010).

Standards: interpretation and personal preference. Standards are guides for evaluating outcomes, but can be affected by personal preference (of leader, of team) and opportunity/room for interpretation (gray areas). The differences in how standards are interpreted and/or enforced create a salient context. A NCO from Field Artillery said, "We all have this mindset that if you do everything correctly, you don’t have to worry about getting in trouble" (P081). Unfortunately, what is considered professional behavior may vary by leadership or as a function of job assignment or locality. Another NCO from Field Artillery explained, “Depending on who you talk to, you might get four different answers on, ‘I’m having some Soldiers over, we are going to do some team building, we’re going to have some beers, is that OK?’ One senior NCO will tell you, ‘As long as they don’t drink and drive, absolutely.’ Another NCO will tell you, ‘Is everybody involved? Are you only selecting certain people? If you are only selecting certain people, that’s not OK.’ Another NCO will tell you, ‘Well, if there is alcohol involved, you can’t do it.’ And someone else will tell you something that is, maybe, a mix." (P086). A NCO from infantry said: “I hold my guys to a different caliber. I hold my platoon to higher standards than the rest of the company ... whether that was uniforms, PT, family time ... I wanted to instill what I learned as a private into them so

that they could maybe go further than I did or become better Soldiers than what I have been seeing in the regular Army. It is hard, because they will be like ‘Why are we doing this when everybody else isn’t doing it?’” (P108).

A tanker explained how everything in a tank is generally positioned the same way and everyone is generally trained the same way, but there can still be problems when someone new is placed in a crew. For example, “pull someone from another crew who is not used to the way that you work. And then what they are used to, what their boss or tank commander or gunner, whatever it may be, or even the loader and driver, they do something differently and they make a mistake or do it that way, you could hurt somebody” (P075).

Deployment cycle (Army Force Generation, ARFORGEN). Units move through stages of a deployment cycle, currently the ARFORGEN cycle, which includes training, deployment, and reset. When combat Soldiers are not deployed to combat zones (e.g., in garrison) or are not actively engaged in training, they are less likely to perform duties and tasks associated with the job for which they were hired. Soldiers reported that professional distance was relaxed, to some degree, while on deployment. For example, Soldiers are able to approach higher leadership directly, rather than through strictly following the chain of command. The rules for uniforms are more lenient. But, as a tanker explained, the work is “more rigorous. You get less sleep, you work harder. No days off” (P075). While deployed, the job becomes more serious under the threat of danger. A member of Field Artillery said, “When you go on deployment, it’s you and your guys and you could possibly die together. When you are [in garrison], you’re still doing your job, it still counts, and you still have to do it the same way that you would if

you were on deployment, but that’s not there ... You always have ‘I could still go home and drink a beer’ in your head” (P060). A Specialist from Air Defense Artillery suggested, “when you deploy, you depend on each other a lot more. So, you gain camaraderie. In garrison, it’s just that everyone is doing their own thing” (P043). Of course, garrison, training, and deployment are broad terms and individual experiences vary considerably. As one infantryman said, “Every deployment is different for everybody. We were in the same company, different platoons. But we had completely different mission sets and we did two totally opposite things” (P121).

Concluding Remarks about the Team Resilience Framework

The team resilience framework is a heuristic approach that can be used to convey the key components of a particular conceptualization of team resilience. Figure 6 illustrates the application of this framework to the current study. Comparisons between the components addressed herein and those of other studies can facilitate the synthesis of team resilience research.

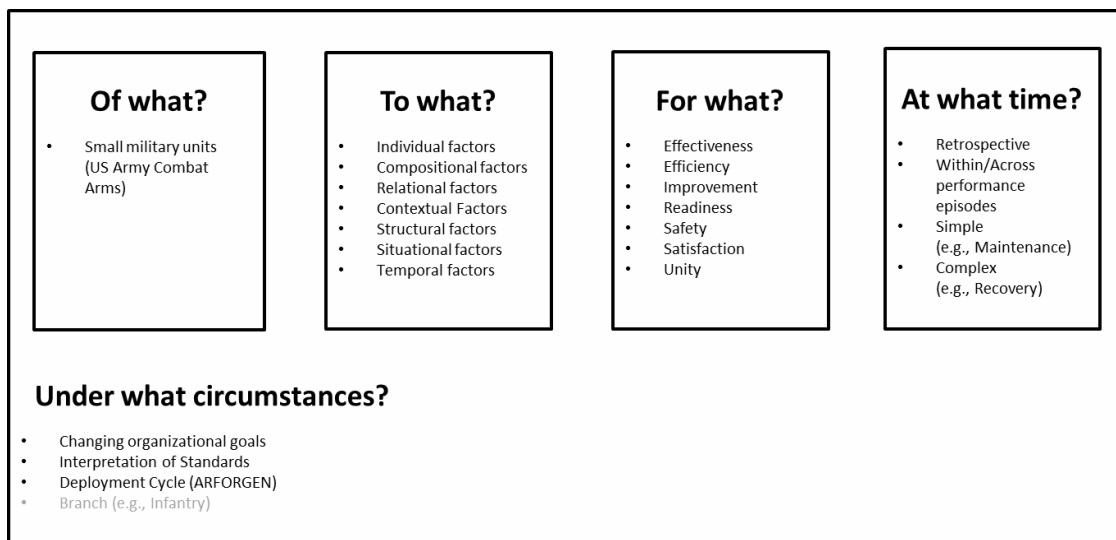


Figure 6. Key components in present application of Expanded Team Resilience Framework

The small military units sampled herein ranged in size from 2 members to 9 members and were nested in a multi-team system (e.g., aircrew as a part of a flight, tank crew as a part of a section). Participants emphasized the necessity for division of labor across the specialized roles in each small unit, rendering members' roles inherently interdependent. The emphasis on interdependence was made explicit in comments from each of the five branches. For example, a NCO from Air Defense Artillery said, "The Army teaches us to work together. If one fails, we all fail. If one fails, the whole crew fails" (P047). An Officer from Armor underscored the importance of working together with other members in one's small unit, stating that when a crew member is not performing his role, he is "putting everybody else at risk. If you are deployed, you are doing it for your battle buddies. Because if you are not doing your job, then you are putting them at harm; letting them down. You are not upholding your end. And in the Army, that is a crazy big deal" (P080). Indeed, team resilience may be particularly critical in small military units, because team members have so much interaction with and impact upon one another. A NCO from Field Artillery commented, "When you are talking about a small group of guys, a small group of Soldiers of ten or less, the individual Soldiers in there have a huge impact on all the other individuals" (P065).

Membership in small military units is dynamic. Participants indicated that small unit membership does (and *is expected to*) change over time – particularly as Soldiers transfer duty stations, are promoted or separate from the Army, are absent due to loss/injury/illness, engage in temporary collateral duty assignments, and/or pursue

individual or small group training/certification. An infantryman noted, “You will have this constant flow of changing people around you and you will never really see the same people around you for too long” (P101).

The application of the Expanded Team Resilience Framework to this study guided the rich description of the types of disruptors experienced by small units and suggests a potential method for classifying disruptors according to one of six sources (e.g., individual disruptors, situational disruptors). The disruptors identified herein should not be considered an exhaustive list. Disruptors can present themselves simultaneously or in close temporal proximity and so it may be difficult to assign a single disruptor to a particular disruption. For example, is it the lack of personal space or dissimilarities in nighttime rituals that affect team dynamics while on deployment? Although the classification system presented herein was derived logically from participants’ recalled experiences, the classification system requires validation.

Most of the disruptors identified by participants were associated with negative effects for the team. But a single disruptor might prove either positive or negative, depending on other circumstances. The same disruptor can be energizing for one group of Soldiers and disconcerting for another. For example, infantrymen are likely to expect to have kinetic deployments – after all, they train to engage the enemy directly, often in very close physical proximity. Soldiers may expect to be placed in dangerous situations and to have to defend themselves and their peers from an enemy. As one infantryman recalled, “My last deployment, we actually did things – like, combat wise – and the stress level was lower ... if that makes sense. When you get into a firefight or you are out there doing stuff, adrenaline kicks in” (P113). This was contrasted with a more recent

deployment experience, where an infantry unit spent a lot of time pulling security, “staring at a T-wall all day. Just sitting in a big armored vehicle with all of your tactical equipment on, sweating your butt off for, like, twelve hours. I thought it was going to be more, like, direct fighting with the enemy. But really it was just, like, security” (P110). Another infantryman confirmed, “Yeah, it came to the point where we was just sitting in the tower, like, ‘We want somebody to shoot at us’” (P112). Another infantryman added: “You expect to get shot at when you go there. You are going to war. You want to get shot at. You want a fight. Cook wants to stay on the FOB and watch TV or play ‘Call of Duty’” (P114). These comments suggest that personnel from Combat Arms may expect to engage the enemy directly and, at least from their point-of-view, this expectation may not be shared among personnel hailing from other Regimental Divisions, like Combat Service Support (e.g., cooks). Likewise, remaining in the relative safety of the FOB might prove demoralizing for one group of Soldiers and comforting to another. These results challenge the assumption that all disruptors will result in negative consequences for a small unit.

Teamwork is goal-directed, thus the outcomes identified herein are a reflection of purposeful collective affect, behavior, and thoughts and reflect desired states. Participants identified seven team outcomes: effectiveness, efficiency, improvement, readiness, safety, satisfaction, and unity. A team that achieves one outcome may be more likely to achieve another outcome. For example, satisfaction and effectiveness are related to one another. A tanker suggested, “The job will go smoothly, get done, it will be a good day” (P074). A member of Air Defense Artillery similarly explained, “If everything is going well, our morale is just always up. That keeps the morale up. There

is nothing negative or anyone that has morale down and feels like they don't want to be there. Everyone's morale is up, we're having fun, it gives us more of the chain of command off our backs if our morale is up and we're doing the right thing" (P047). On the other hand, the achievement of one outcome may conflict with the achievement of another outcome. For example, safety and effectiveness do not always align with one another: "Safety is a good thing. But safety has a point when it goes too far and affects our ability to accomplish things. Doing maintenance out on the fly line, we had two people go down due to heat exhaustion because they couldn't take their top off. [Leadership was] more concerned about them getting burned. So, it's 110 degrees outside, you're in long sleeves, long pants and can't do anything about it" (P032). A NCO from Air Defense Artillery said, "I don't know, in the heat of battle ... I mean, if missiles are coming in, I am not going to be, like, 'Hey man, make sure you put on all three points of contact. I know we have a missile coming in, but, seriously, where are your gloves?'" (P052).

Performance-based outcomes like effectiveness, efficiency, (aspects of) readiness, and safety can be assessed using objective, predetermined metrics. Attitudinal outcomes like (aspects of) readiness, satisfaction and unity are more complex; for example, one cannot simply meet *x*-number of standards and necessarily be satisfied. Attitudinal states may be inferred via behavioral indicators. The evaluation of success may also depend on the level (scale?) at which evaluating – the team can be successful, but the individual may not be (or vice versa). In addition, different stakeholders may have different – even conflicting – criteria for determining success. For example, in training, a team wants to

be as successful as possible, but trainer wants to them to improve, which may mean they have to stumble a bit in order to learn their own weaknesses and limits.

Team processes and outcomes can be observed over time and plotted as response trajectories. The results herein suggest a set of simple trajectories that can be combined to form more complex trajectories. Although participants endorsed each of the aforementioned trajectories, it remains unclear whether or under what circumstances each trajectory should be classified as representing the process of team resilience. In addition, I was unable to ascertain timing associated with trajectory changes (i.e., slope changes associated with complex trajectories). Longitudinal studies can help to elucidate the continued relevance of these and other trajectories to the study of team resilience.

Resilience trajectories are perhaps indicative of various processes for managing disruption. Indeed, team members make many diverse contributions to the coordinated effort, and these can be arranged in any number of combinations, resulting in multiple paths that can lead to an outcome. Team processes and emergent states (outcomes) should be expected to vary over time (Henning et al., 2014). A focus on outcomes alone does not illuminate the process(es) responsible for observed fluctuations in those outcomes over time.

And finally, the framework encourages the articulation of the context in which teamwork occurs. The primary contexts discussed herein (Big Army goals, standards, and ARFORGEN cycle) are distinct from contextual disruptors in that a given context may make certain disruptors more likely than others. Although three primary contexts have been identified, it is likely that others will emerge through continued research. The identification of broad contexts that describe the circumstances in which team processes

occur can help to identify potential moderators of the disruptor-disruption relationships relevant to the process of team resilience. Indeed, according to participants, context can affect a broad range of experiences, including what a small unit focuses on, what a small unit is exposed to, how a small unit perceives demands and resources, how a small unit copes, how members of a small unit interact with one another and external others, and how small units manage their time. For example, several participants indicated that although the work was harder while deployed, it was focused. In garrison, however, there is not an enemy to defend against and so other types of taskings can get assigned to a small unit. According to participants, these extraneous tasks can add up, causing Soldiers and small units to work longer hours. A member from Aviation said, "Rather than getting home at six o'clock, you get home at nine o'clock. And then it starts all over again. So, psychologically, it almost feels more stressful than when you are just deployed" (P027).

Other broad contexts are also likely to be relevant. For example, participants also frequently mentioned differences across branches (e.g., infantryman vs. cook). Branch was not formally included as a context in the current theory because few participants were able to speak from personal experience working in more than one branch. One pilot, who was a former infantryman, recalled: "My first six years in the Army were in infantry. I have been a vehicle commander in Humvees and vehicle crews which worked almost identical to the aircrew except it was very much harsher in a vehicle crew. As pilots, we ... strive to make sure that the aircrews, the crew chiefs stay comfortable with what is going on, that they feel free that they can talk if something is going on, they don't have a fear of reprisal for saying something ... the big thing is, we don't want them,

when something should be said, not to say it. For any reason. The rest of the military? Like, when I was a sergeant, if my driver or gunner said something like that to me, I would have just started cussing about it, told them to shut up and do their job. But now that I am in an aircraft, you know, we try to encourage so much that even the private who has been in the army for six months can tell me – who has been flying for so long, been in the Army for so long – ‘Hey, Sir, you’re coming in too fast, you need to slow it down a bit.’ It’s so polar opposite from being on the ground" (P029).

In conclusion, the utility of the framework for guiding rich descriptions of the team work arrangement has been demonstrated through the current application. The framework can be used to articulate relationships of interest as they apply to team resilience (e.g., classification of disruptors). The framework is likely to provide sufficient guidance for conceptualizing resilience as a capacity (global team property), given the framework encourages specification of circumstances which could be interpreted more narrowly as the identification of promotive/protective and/or risk/vulnerability factors. However, the framework does not provide guidance for describing how teams manage disruption (process) or how teams become resilient (emergent state).

Description of the Process of Managing Cues, Disruptors, and Disruptions (RQ2)

The goals of RQ2 are to describe the primary phases and associated elements of the process of managing disruption and identify factors that affect (promote or inhibit) these elements. Recall that resilience is operationalized herein as a general (non-specific) collective process of managing disruption that consists of five primary phases: selection, mobilization, detection, determination [adjustment, as necessary,] and reset. Each

primary phase is described in the following subsections, and includes a description of associated elements and influential factors.

Phase 1 of the Team Resilience Process:

Specification and Acceptance of a Shared Directive

Team members, by definition, coordinate efforts to work toward a shared goal. Team resilience, then, must necessarily begin within the context of goal-directed, purposeful behavior. In both interviews and focus groups, shared goals emerged as fundamental to teamwork. The importance of grounding the resilience process with shared goals was made explicit in comments, such as that offered by a NCO from Air Defense Artillery: "If everybody has got the same mutual goal, and you are having issues with getting to that goal, then there are going to be steps taken to get to that goal and you are going to have your ups and downs within the group. It's just like with an individual. Every time you try to reach a goal, it's not always going to go perfect. You are going to have to adjust for that. The group is going to be the same thing ... It's gotta be something that the whole group, every person in the group, actually wants" (P089).

In the Army, taskings and missions are generally directed or delegated by leadership and are not self-initiated. Participants offered few instances as examples of self-initiated goals. Examples included (re)organizing common workspace and/or electing to participate in a drill or other training to fill downtime or white space on a calendar. To the extent that the designated leader of the small group, usually a sergeant, is afforded the opportunity to exercise his best judgment with respect to use of downtime, these goals can be considered self-initiated. However, it is more likely that teams are simply accustomed to spending downtime or filling white space with activities that have

been pre-authorized or suggested by higher leadership. Even those activities that were offered as exceptions to leadership-driven goals, while self-initiated, are unlikely to be self-identified. Thus, the term directive, rather than goal, is used to articulate this initial phase of the process of team resilience.

The Army has procedures for introducing directives to Soldiers. Broad team goals can be communicated to new team members during in-processing. These goals are described as "expectations. What we want from them and what we will ask from them, what we will be asking of them. You know, physically, mentally" (P082). More specific team directives may be communicated through mission briefs and typically requires the assembly of all team members at one time. A trainer from the National Training Center explained, "[The brief] effects my team – whether they are going to do their mission on time, whether they are going to check in on time ... I mean everything has a timeline and there's a reason why we do it. 'I got to take off at this time to be here at this time on this frequency at this place because he needs me to go look at this'" (P004).

In addition, there are often specific standard operating procedures (SOPs) that should be followed while working on a tasking or mission. "Let's use the aircraft as the example. We have work packages that tell you exactly how a certain task or a certain maintenance procedure needs to be performed. And it is very step-by-step, with pictures, words ... hard to mess it up. Some tasks are bigger than others, some aircraft need multiple ones. So, something that has directions like that and is very cut and dry, I can give that to some very new junior leader, and be like, 'Hey, I'm giving you these guys. This tasks needs to be performed on this aircraft. Manage your time. Here's your left and right limits. You have three hours to accomplish this.' And that's very basic. Now

there are going to be other things, say, 'We have inclement weather coming in and I need you to grab the guys and push the aircraft in and figure out a way to make them all fit into the hangar' or 'I need you to figure out how to set up a [Land Navigation Range] – even though you have never done it.' And there are going to be guys, like, 'I've never done this before, it isn't something out of a manual that is, like, step by step.' And that's another development: Problem-solving skills" (P023). Not everything can be captured in an SOP and to some extent, directives are given to those individuals and those teams perceived by leadership to be capable of handling them. Ideally, junior personnel receive directives with specific SOPs, while more experienced personnel receive directives with some degree of ambiguity or flexibility.

When faced with long-term or complex goals, teams may benefit from setting shorter-term or simpler, interim goals. According to participants, approaching goals incrementally can sustain motivation. As an infantry NCO explained, "There is a process to get there. If it is the PT test or shooting or a ruck march, whatever it is, just be two seconds better, be two seconds faster, be one shot better. And then six months from now, you are going to see this huge change. You want to go from, you know, an eighteen minute two-mile to a ten minute two-mile tomorrow ... [but] it takes time, effort, and work" (P105).

Elements: Specification, Acceptance, and Sharedness. Three elements emerged as particularly important to the initial phase of the team resilience process: specification (understanding), acceptance (buy in), and sharedness. Directives need to be sufficiently described to afford team members an understanding of what they are being asked to do. A trainer from the National Training Center explained when directives are clear and

explicit, “Everybody knows where they fit, what they’re part in this place is ... You don’t have to have every single detail out, but you have to have the general who, what, when, where, why” (P017). Participants noted that having an identifiable end state, can sustain engagement and perseverance. For example, an infantryman explained, “I know for me, if I have a full workload, if everything is ‘This is what you got to do. This is what you got to do. This is what you got to do. And you are done.’ I will be working all day. I’ll be digging that ditch all day. If I know that once that ditch is dug, I’ll be done” (P102).

Work can proceed without a specific goal, but as an NCO from infantry explained, “if things are kind of ambiguous and not real clear as to what it is, people are less apt to do it. They don’t know what the end result is or they don’t know what they are really doing. That clear and concise is definitely a part of it. But if it’s ambiguous and no one knows what is going on, it’s going to be a long day for everybody” (P116). In addition, participants indicated that directives need to be accepted and shared. A tanker explained, “If everyone on the team is on the same page and working toward the same goal, then generally you will all be ... you know, of the right mindset” (P079).

Influential Factors. Several factors emerged as important to this phase of the resilience process, including: purpose, communication content and framing, leadership, team cohesion, individual motives, and the specifics of the task itself. Communicating the reason for the directive can facilitate understanding. Small unit leaders suggested that failure to understand the purpose of a directive can lead to Soldiers questioning the validity of the tasking or mission. For example, a member of Aviation asked, “Why are we doing it? Why are we going outside the wire, risking our lives for a mission that doesn’t seem like it is helping anyone in the country, doesn’t seem like it is helping us,

doesn't seem like it is protecting anyone ... It sounds like we are just out here, burning fuel" (P036). These questions can lead to disengagement, demoralization (dissatisfaction), and reduced effectiveness. However, as an NCO from Air Defense Artillery suggested, "...if you show them why they are doing it, they are going to do so much better. You can have them pulling weeds out of rocks. If they don't know why they are pulling weeds out of rocks, they are going to kick some rocks over the weeds. If they know that they are doing it for a specific reason, like to keep the rats or the bugs out of the barracks, they are going to make certain that they get every one – because they don't want bugs or rats. I mean, it is all about painting that big picture for them and letting them see, 'We are doing this for a reason, we are not just trying to waste your time'" (P096).

How the directive and its purpose are communicated can also influence the degree to which directives are understood, accepted, and/or shared. Communication includes the source, quality, timing, and framing of a directive. The source and quality of information communicated can affect the degree to which a goal is internalized by team members. A NCO from infantry explained, "There is a lot of, 'I heard this from so and so. What is going on?' There is no clear line of communication from top down and it seems like that piece of the puzzle is not there. And other pieces, like information is going somewhere else and we kind of hear it from the left and the right" (P119). The timing of the directive is also important. An infantryman said, "Not to mention they wait until the last minute to tell you to get something done ... in, like, an hour. You have been sitting there all day and now they come in with something" (P112). Similarly, the way in which a directive is

framed is important. Another NCO from Infantry explained, “If you present it as something that is urgent and needs to be done, then usually it will get done” (P118).

Leadership can affect the degree to which goals are understood, accepted, and/or shared. Leadership, here, subsumes themes like approachability, leader presence, and mutual respect. A trainer from the National Training Center said, “I personally think 75% of a unit’s performance is based on its command climate. The Soldiers are all trained roughly the same. We all do the same type of stuff. We all know what right kind of looks like. Great units have that ... it’s an open dialogue and they can bring up issues, discuss fixes at different echelons and are allowed to take the initiative and are not stifled ...” (P004). A leader can create a climate within which small unit members feel comfortable approaching him or her with questions, concerns, or other news. For example, a crew chief from Aviation explained, “Before we go out, we all sit in these big rooms and we talk about these things. We talk about it amongst ourselves and then we go to the aircraft and that crew talks about everything. And the person in charge, which is usually the Pilot in Command, he says, ‘Look guys, if at any time you feel uncomfortable, bring it up, say something, immediately. If I am doing something wrong, say something, immediately. If you are catching something that we are not catching, say something, immediately.’ So, it is definitely across the board, no matter rank, no matter how many hours you have in the aircraft, no matter how many missions you have gone on, it is ‘Say something.’ Always” (P025). Alternately, a leader can create a climate in which asking questions and/or offering suggestions is frowned upon.

Leader presence affects acceptance. Many participants suggested that team members are more likely to respect their leadership and to remain engaged in a tasking if

their formal leader is willing to work alongside them. A NCO from Infantry said, “Team leaders should be right next to their guys, doing the same work, doing the same amount of guard and patrol ... carrying the same amount of weight as them ... and doing it better, because they are the leader, they are the Sergeant” (P116).

Individual motives and expectations can affect whether directives are understood, accepted, and/or shared. An NCO from Infantry explained, “As infantry guys, they are ‘I want to get in a fight. I want those stories that Sgt XXX had.’ I try to explain to them, typically those stories are followed by: ‘That was the day that Sgt XXX got killed.’ Or that is the day that we put XXX on the bird and he got shot.’ Those parts of the stories are the parts that you don’t forget. The stuff you are talking about, people leave the ‘but’ out of it ... I was there ten years ago, as a private. I was like, ‘I want to go win the war. I want to be like all the cool movies. I want to be that guy’” (P105). Some participants suggested that team members need to share a larger purpose, a reason for being a part of the Army to begin with. For example, an NCO from Air Defense Artillery said, “I can tell you that out of the sixteen people I had in my last class, I think that two of them said that they were looking for a career. The rest of them said, ‘I want a security clearance so that I can get a GSA job’ or ‘So I can go work for Ratheon in two years.’ And that is what they look at. Instead of looking at, ‘I’m coming in to protect my country, I am coming in to fight’” (P095). To some degree individual motives/expectations can change as a function of tenure and experience. For example, a NCO from Infantry explained that initially, new infantrymen are motivated by “... the cool guy stuff. ‘I am going to blow stuff up, I am going to shoot things. That is what I like.’ That is what the guys coming in are joining the infantry for. Down the road, it is more about the brotherhood. ‘I am

going to do it because he is doing it. I am going to do it because we are all sucking together – that is why we are doing it.’ But, initially, it is the cool guy stuff. ‘Where are the bombs at? Where’s the cool stuff?’ Once you have the brotherhood, you can have a lot less of the cool guy stuff” (P120).

Participants indicated that having a unit identity, especially having pride in that identity, can help to facilitate acceptance and sharedness of goals. A trainer from the National Training Center explained, “If you give that [unit] that has a lot of pride, you give them the mission, [they] might not know what’s going on, but [they’re] going to say, ‘well, alright, I’m still going to do it ...’” (P017). As indicated by this statement, there may be times when a leader does not know or cannot give sufficient reason or purpose for a directive. Despite not having a clear understanding of why the directive is being pushed down, small units that have respect for their leadership are more likely to carry out the order. Similarly, an NCO from Field Artillery explained, “... we do a lot of stuff that, like I said, is not fun. But all the time, all my dudes really give it their all. I would say it is one of those things that ... maybe they don’t want to let me down. Kind of. ‘He does all these things. He is really nice to me. The last thing that I want to go and embarrass him or let him down.’ I’ve never had issues with a guy” (P085). A trainer from the National Training Center said, “Respect. You know, like if you don’t respect that individual, you’re not going to listen to them. Basically, you’re not going to let them lead” (P017).

Phase 2 of the Team Resilience Process:

Mobilization for Collective Action

The second phase of the process of team resilience is preparation for collective action. Upon the specification and acceptance of a shared directive, the team must mobilize for collective action. Mobilization may be required immediately or teams may be afforded more or less time to prepare for collective action. Teams should have a plan in place for moving forward. As discussed previously, the Army has specific, formalized procedures for using certain equipment, performing certain tasks, interacting (e.g., communicating) with team members, and addressing other aspects related to a tasking or mission. Much of a team's effort to mobilize can be directed by standard operating procedures (SOPs) and, when operating under short suspense, existing SOPs may be the only plan available. However, SOPs may not provide guidance for responding to unpredictable disruptors and/or disruptions. Rather, teams must manage disruption – either proactively, by setting measures in place to avoid or mitigate the effects of a disruptor or reactively, by adjusting their process or course as they continue working toward their collective goal. Mobilization affords a team the opportunity to plan for potential disruption and to put measures in place to help them manage disruptor cues, disruptors, and disruptions as they arise. As one trainer at the National Training Center indicated, “Being proactive. More than half of the problems incurred are due to a lack of prior planning” (P007). Through discussions with participants, four elements emerged as particularly important to this phase: prioritization, risk assessment, contingency planning, and resource specification.

Elements: prioritization, risk assessment, contingency planning, and resource specification. As indicated in the previous section, teams are often tasked with multiple directives. In addition, complex or long-term directives may be parsed into a collection of simpler or short-term goals. A trainer from the National Training Center explained, “There is no unit in the Army that can get everything done that it has been tasked to get done. Not enough time to get done all of the tasks. Prioritization. You’re assuming risk. Then once you prioritize, being proactive. Going after those things” (P009). Prioritization, risk assessment, contingency planning, and resource specification are all important elements associated with preparations to act on a directive.

Teams will be more successful if they are afforded and take the opportunity to engage in thorough preparation (i.e., aforementioned elements) for a tasking or mission. Relying on a standard operating procedure or making assumptions about the availability of resources does not adequately prepare teams to manage disruption. A trainer from the National Training Center said, “I understand that there are rules and guidelines, say the SOPs, which say it this way because that’s the bulk of you know, what turns out, so you have the most likely instance ... but you have to have that structure to be able to go, ‘Let’s think about maybe this other little factor that maybe never really happens so that we can be prepared for it’ ... not necessarily be guarding against it, but be prepared that it might happen. Like, some of our briefs during the day, ‘If we happen to go down, this is what is going to happen. If, once we hit the ground, nobody is in immediate danger, the aircraft is not on fire, then we’ll stay in the helicopter until the dangerous stuff stops moving and then we will get out of the aircraft’ and then ‘the ascension of command from that point is me, you, you, you ...’ Not that we are going to get on top of a mountain

and roll down it, because that is part of our job not to do, but its talked about, just in case” (P017). Having a contingency plan in place can allow a team to continue to move forward with a directive, despite exposure to an anticipated disruptor. Implicit to contingency planning is the ability to forecast disruptors, as well as likely antecedents (disruptor cues) and effects (disruptions).

Resource specification includes the identification of necessary personnel, equipment, tools, knowledge, skills, and other considerations to perform the directive as intended and an inventory of resources currently and/or potentially available to the team. Each of the teams sampled herein are composed of individuals who perform specialized functions and are assigned to specific roles. Training for skill development was mentioned time and again as an important aspect of this element. Indeed, individuals and teams receive extensive training with respect to their own roles as well as how to coordinate with other team members and other teams. In many cases, team members and teams receive certifications that recognize an individual or team has met a certain level of proficiency and this certification is required for certain taskings or missions. Where resources are adequate, redundancies in function can be built into the team structure. In addition, with sufficient time, team members can cross-training as a way to prepare for the injury, loss, or absence of a team member.

Influential factors. Discussions with participants revealed a number of influential factors associated with mobilization for collective action, including having participated in elements associated with the previous phase, specification and acceptance of a shared directive; and also time, leadership support, training, self-awareness, and initiative. Participants were not able to offer any examples of small units preparing to act

without having some goal in mind. Indeed, it is difficult to mobilize for action when the directive is unclear or misunderstood (not specific) or for which all team members (sharedness) do not buy-in or take ownership of (acceptance). In addition, the more time available to the team prior to actively performing the task, the greater the opportunity to engage in elements associated with mobilization. Otherwise, teams will necessarily rely on SOPs and prior knowledge and/or experience with a particular disruptor or disruption.

Leaders can support the mobilization for collective action by establishing an operational tempo that is manageable and affords sufficient time for planning activities. An Infantry NCO explained, “Leaders have to be a lot more inventive, creative with how they [assign taskings]. At my level, take a week’s worth of tasks that I get over the course of the week for the platoon – it doesn’t require that all thirty of my guys are engaged for the entire work week, each day, five days a week. So where it comes down to me, I am juggling how many tasks these guys can do before it just completely blows them out. And how do I shift that around and shift focus from day to day, based off of what they are doing, taking into account what they have been doing for PT, what they have been doing extra, what they have going on personally that might have an impact – they are all things that have to be taken into account” (P107). In addition, leadership can provide advanced notice of other – simultaneous or future – activities or directives that may affect how the team prioritizes or uses resources. Management can also support this phase of the team resilience process by making teams aware of and providing access to those resources required to perform as intended.

Most participants offered training as an example of way to strengthen the value of personnel resources. For example, like individuals who need to train for role proficiency,

teams need to train together to develop their ability to work together. Training is critical for developing proficiency and self-awareness – both in and out of one’s own role on the team. A NCO from Field Artillery explained the value of cross-training, in terms of preparation for managing disruptor cues, disruptors, and disruptions: “In a Howitzer section, it is absolutely critical that the guys are cross-trained on the different tasks. If something happens to someone, you can operate the Howitzer with a lot less crew than what the Howitzer technically requires. So, if there were to be a situation in combat, where part of the crew was injured, you could operate with, arguably, three or four guys if you really had to in that situation. And so it is very important that all of the guys be familiar with the next level up job that they would need to do. It is all really easy, as long as you take the time to train on it and then continue to switch guys into these roles to make sure that they remember how to do it. These simple tasks, people end up seeming to forget how to do. Or, not even forget, but are just not comfortable doing it. You put them in that position and they want to freeze up or they want to ... freeze up, really, is the best term for it” (P053).

Indeed, participants indicated that teams can benefit from exposure to disruptors while practicing/training together. A pilot explained, “The harder we train, the easier the simple things get. That goes just for flying at night. The more you fly at night, the easier your flight during the day is” (P004). An Infantry NCO concurred, stating “In an ideal world, we would train to accomplish a task. [But] for a combat oriented unit, you try to come up with the most gnarly hellacious scenarios and see if your men can thrive in those scenarios, knowing full well that one time in a million would you ever actually find yourself in that specific scenario. You know, you feel like you have that buffer of what

your unit is capable of and then you should tailor your unit, backed off from that ... you want to have extra in the tank, so that if your mission calls for you to perform to this level, if shit hits the fan, they need to be prepared and capable of performing at this level. This needs to be my optempo so that when things get really bad, I can still say ‘I’ve still got something that I can give.’ Because if I don’t and I just plan because I have seen my guys do this, well, if I take any curve balls, if there is any change in the mission and I’ve got to do more, now I have to get creative or I have to willfully sacrifice. The other thing that units don’t want to do is say, ‘I got that done, but by the skin of my teeth. My company or my platoon is spent.’ Nobody wants to tell their bosses, ‘Man, you got everything that I could give. Don’t ask any more than that.’ The mindset is, if I make you climb Mount Everest today and tell you today that we are going to have to do it again tomorrow, you need to get right with Jesus, because that is what we are going to have to do” (P107).

Phase 3 of the Team Resilience Process:

Detection of Disruptor Cues, Disruptors, and Disruptions

The first two phases of the team resilience process demonstrate the need for teams to both accept a shared goal (directive) and to prepare a plan for achieving the goal. Anything that has the *potential* to affect progress toward a goal – whether the effect is to augment, hinder, or completely transform team process – or goal attainment is a disruptor. An overview of the types of disruptors to which teams may be exposed was provided in the previous section. Failure to recognize disruptors and their effects can result in a team losing an opportunity to reap potential gains or lead to devastating

consequences. Thus, the process of team resilience must also account for how teams work together to detect disruptors and disruptions.

Elements: monitoring, recognizing, and appraising. Three elements emerged as particularly important for the detection of disruptor cues, disruptors, and disruptions: monitoring, recognizing, and appraising. Monitoring is a proactive activity that involves actively looking for cues which signal a disruptor or disruption. For example, many participants discussed known cues for individual disruptors, those issues that might cause a team member to focus or become disengaged with work. An infantryman suggested, “If any of the guys start acting weird or they are not sleeping, or it seems like every time they talk to their family they are depressed, or they are just kind of blue and not talking a lot or acting all shaky ... There might be something seriously wrong” (P106). A NCO from Field Artillery offered, “Sometimes you are able to look at the quality of work that they do. How long it takes” (P074). Cues for relational disruptors include: bickering (P002), avoidance or withdrawal from the group (P100), lack of affective bond/cohesion (P111), lack of focus on task (P001), lack of communication (P046), and misbehavior (P095).

A team does not operate in a vacuum and other entities may share an interest in the team’s success. While team members, themselves, actively monitor for cues, disruptors, and disruptions, their leaders, trainers, and peers are often in a position to detect disruptor cues, disruptors, and/or disruptions (P021). An instructor pilot suggested, “As a trainer, I throw more and more at people until I can tell that they are getting saturated. In that situation, where I am giving him stuff over and over and

eventually he stops responding, or she stops responding, it is because I have overloaded them and now I know that I need to back off” (P027).

Monitoring for, recognizing, and ascribing meaning to disruptor cues and disruptors are proactive behaviors. Recognizing a disruption – whether at or after onset – is a reactive behavior. Indeed, it is not always possible to detect disruptors before they take effect. A NCO from Field Artillery explained, “Sometimes, you don’t know exactly what happened, you just know that you are being called to action” (P083).

Influential Factors. Participants identified an array of influential factors that can affect detection, including having moved through the first two phases to establish, accept, and prepare for a shared goal; as well as vigilance; communication; formal systems, standards, and SOPs; familiarity with one another and/or with similar experiences; and time. Activities associated with the previous phases of the team resilience process, specification and mobilization, can prime what team members are looking for, can affect whether or not a disruptor is recognized, and can inform how a disruptor is interpreted. Explanations of each of the other elements follow.

Vigilance, herein, is associated with attention and focus. Vigilance was implicated in both successful and unsuccessful detection. A NCO from Field Artillery explained, “You’ve got to be paying attention quite intensely and being on there for twenty-four hours that is not going to happen with only a four-man crew. You gotta stare at the screen. You cannot take your eyes off of it. The amount of time for a rocket attack is very short, you have a very short window” (P089). A pilot recalled an incident where another crew crashed their helicopter, presumably because their focus was too narrow: “They could tell they weren’t going to clear a ridgeline. And they just kept going,

thinking and praying that, maybe, it was close but they were going to clear it, rather than turn around, and once they figured out that they needed to turn around, it was too late. They were stuck in too tight of a valley and they were committed” (P027).

The pilot suggested that the narrowed attention resulted in too little communication between the two aircrews, adding: “When communication breaks down and people stop communicating, it can turn into a bad situation because somebody got so task saturated and so focused on clearing a mountain peak that they didn’t notice they weren’t going to make it” (P027). Open lines of communication and good, quality exchange can help to keep all members on the same page – especially if not collocated (e.g., tank driver or tandem-seat pilots). As one NCO from Air Defense Artillery explained, “If the crew works well together, and something changes or something new happens, they will let everybody know” (P096). Team members need to share information with one another. A pilot referred to effective communication as “two-way, like, both from the two pilots up front, the two people in the back. Also, effective communication ... you know, like if they do see something, they can relay the severity of what they need to say without like touching or ... because we’re separated by seats, so it’s not like they can reach up and grab us. They have to like stress in their voice or say keywords that will get us to key in on what they are saying” (P021). In addition to two-way, effective communication, team members must also be feel comfortable and be willing providing information. For example, a Warrant Officer from Aviation explained, “Regardless of whether it’s a CW1 or a Lieutenant Colonel in the front seat, if Joe Snuffy, the private in the back, thinks anyone up front is doing something wrong, they are

going to be as professional as they can be, but they are going to say, ‘Hey, I’d prefer not to die today’” (P030).

There are formal standards, procedures and formal tracking systems that allow one to quickly recognize when an entity has fallen – or is about to fall – below standard. For example, in aviation, if a crew member is fatigued he or she⁹ is more likely to have error, so leadership monitors how many hours worked and tries to offer or force rest (reset). A trainer from the National Training Center explained, “We have a tracker of how many hours you’ve worked over the last whatever months and you can look and say, ‘Well this guy’s got twelve, this guy’s fourteen, this guy’s eighteen’” (P015). In addition, there may be inspections of equipment to make certain in working order (e.g., ARMs inspection).

In addition to formal tracking systems, team members can vary with respect to how familiar they are with each other, with the equipment and tools they are using, and with the situations they encounter. Familiarity can help someone to recognize when something is amiss – or about to become so. Knowledge and previous experience are particularly influential when it comes to recognizing cues and ascribing meaning to them. Domain knowledge acquired through training and/or past experience can facilitate considerations of second- and third-order effects. Familiarity with your team members plays a key role in how cues are interpreted. For example, a crew chief from Aviation suggested that there are behavioral indicators of task saturation, explaining: “It’s our actions, our voice. Especially if you work with people enough, you fly with them enough you pretty much know what they are doing. If they are overwhelmed, you know it”

⁹ At the time of this study, Aviation and Air Defense Artillery were the only branches within Combat Arms that were open to women.

(P026). A pilot agreed, “You know how someone is going to react ... if they are soft-spoken, you know if they get irritated easily ... even voice inflection is a big one, if somebody is easily excitable and typically makes a big deal out of small things, if he gets a little excited, you should probably still listen to him because he is saying something, there could be a danger close, but you’re not going to think about it as much as the quiet mellow guy that nothing works him up, suddenly he starts screaming. I would say your interpersonal relationship is quite big” (P029).

When team members are familiar with one another, they are aware of each other’s tendencies, including personal strengths and weaknesses. Recognizing when someone is approaching their limit or placed in a position outside of their comfort zone can be a signal that an intervention is required. As one NCO from Air Defense Artillery explained, “You have your strengths and weaknesses throughout the group and they will know that, compensate for it, and help each other out” (P098). Lack of familiarity with team members can inhibit one’s ability to recognize certain cues. A trainer from the National Training Center said, “If you are always working together as a team, you know what your battle buddy is going through, or what is going through his mind – is he having marital problems or anything like that – and if you throw another person in that is competent and doing the job, but you don’t know this guy, you don’t know what’s going through his head ...” (P017). Another trainer agreed, “Usually the squad that has been together longer, they have more of a success rate. Because they have been working together longer ... they can read each other. Because they can get into each other’s heads, they know how they are going to react in certain situations ...” (P013).

Despite the obvious benefits of familiarity among team members, familiarity was also been implicated in complacency. A pilot explained, “If you can predict how somebody is going to react in a certain situation, that creates – in our field – that creates complacency. So, if I know he’s always going to do this or I know that he’s going to pick up that slack, like if I don’t execute a field check or whatever, and I know he always does it, but if his mind is somewhere else and he doesn’t do it, that complacency, you know what I mean, and that complacency will create an atmosphere where we missed something and now we’re running out of fuel. ‘Oh my God, I thought you were going to do it.’ ‘I thought you were going to do it’. So, it’s not so much that we are so comfortable that we can predict each other, it’s that we are so comfortable that we understand the ... how the other person thinks or what ... you know, you work with somebody so much that you understand when they say it’s an emergency that it’s a real emergency or when the inflection in their voice says ... then that means its real or he’s just joking around ...” (P021). A trainer from the National Training Center remarked, “If you take for granted that he was going to execute it, but in reality it was never done, I say that’s too comfortable” (P012).

Phase 4 of the Team Resilience Process:

Determination of (Potential) Course Correction

The fourth phase of the team resilience process is determination of (potential) course correction. Given a meaningful disruptor cue, disruptor, or disruption has been identified, the team must now decide what, if anything, to do about it. This phase is primarily concerned with making a decision whether or not to initiate some course

correction and, if so, deciding upon a particular adjustment. An adjustment may be a single activity or a series of activities.

Participants described several general ways a team can adjust its course of action in response to a perceived disruptor cues, disruptors, and/or disruptions. Many of the adjustments described are cognitive strategies for handling disruptions that cannot be controlled. For example, one of the ways a team may adjust to manage disruptor cues, disruptors, and/or disruptions is to restrict or expand team member roles. An individual who is experiencing a personal issue, such as marital problems, may be (temporarily) asked to contribute less, effectively restricting his role. In an effort to redistribute an individual team member's responsibilities, other team members may engage in compensatory behaviors that effectively expand their own roles. Another way team members may adjust to manage disruptor cues, disruptors, and/or disruptions is to reframe or adjust the goal or the meaning ascribed to the disruptor cues, disruptors, and/or disruptions. An infantryman offered an example of how the same situation can be framed two entirely different ways: "There is a lot of guys who are performing infantry missions. They focus on that day's mission, getting their guys through it. And that is the same thing that we do. However, their perception of it and how they actually perform them – there absolutely is a difference. 'Oh, well, we have to drive through this terrible town.' As opposed to, 'Oh, we're going to go pick a fight'" (P109). Similar to reframing is shifting focus. For example, instead of focusing on the present situation, which may not be especially enjoyable, teams can adjust their lens to shift focus to the bigger picture or the desired end state. A NCO from Air Defense Artillery described how his crew handled failing a drill and being placed on lockdown for three days: "You just, like,

embrace the suck. You fail and then it will always be on the back of your mind, but you always know that you aren't going to be on lockdown for years" (P052).

In addition to modifying team member roles, team members can model more appropriate behavior for one another or look to others as models of appropriate behavior. A tanker explained, "If you don't have confidence in yourself to bounce back, then you are not going to bounce back. But if you have a person next to you who can help you to bounce back, who has a positive mindset and can help you, then it will be easier" (P075). Teams may also attempt to rationalize a disruptor cues, disruptors, and/or disruptions away. An infantryman remarked, "FOB XXX takes rockets all the time. I'm sure it's scary for some people, but for all of us? It's not scary at all. It's probably not going to hit where I am and if it does, well, it was your time to go" (P111). In addition, team members can discuss or commiserate about their collective situation.

Influential Factors. Participants identified several factors that might affect deliberation and action, including activities associated with the first three phases of the team resilience process such as goal setting, preparation, and interpretation of disruptor cues, disruptors, and/or disruptions; as well as efficacy, effort, empathy, and participation. Goal acceptance and ownership can affect whether a team continues to look for ways to address the disruptor cues, disruptors, and/or disruptions, such as identifying available resources. As a trainer at the National Training Center suggested, "I think that a lot of it comes down to motivation and the ownership of a task. If you're facing a challenge, then you'll go down there and look for those resources. If you're motivated. If you're taking ownership of the task. If not, the motivation is not present,

then who really cares what resources are available” (P008). Another trainer suggested, “It’s easier to say ‘I can’t do something’ rather than to be proactive” (P009).

Adjustments may not occur for several reasons. For example, a disruptor cue, disruptor, or disruption may go unrecognized. Alternately, the team may have appropriately recognized the disruptor cue, disruptor, or disruption, but did not deem it worth addressing. In both cases, the team has not (yet) entered the third phase of team resilience. However, even if a team has appropriately detected a meaningful disruptor cue, disruptor, or disruption, the team may yet not adjust behavior either because the team does not have the opportunity or team members do not know how to initiate a course correction.

The deliberation process can be strengthened if there is participation from many or all team members as options are generated and a decision to take action is made. Participation in the decision-making process can boost motivation and engagement. An infantryman recalled, “I was always told when I was a private, when I was an E4, that it’s not my job to think. As we all know, everybody loves to think for themselves. So, I have three E4s on my team. All of them love to think for themselves – I don’t give them much room to do it often, but when I do that is a big motivator for them. They can be like, ‘Alright, I can think about this and figure out how this needs to be done ...’ and just come to me with questions and what not. I found that to be pretty useful (P116). A trainer at the National Training Center recalled his own experiences while training at NTC, “I still remember those two incidents [here], completely handed to me, and then coming up with a way to adapt and win. And it wasn’t an [after action review], it was us, as a unit ... and I think that depends on what type of unit you are. My commander, my

troop commander, he allowed – even if he didn’t listen to us – he allowed us and NCOs to have a role in the plan, we would have our say. Speak our piece. Another guy I worked for, he would come up with the plan on his own and we had very little buy-in. So, as a group, we got together after we got up and we talked about how we do better, how we could beat these guys. That sort of allowed everyone to buy in to what we were doing” (P006). In aviation, crews are encouraged to work together to solve problems. For example, a pilot said, “There are people who would argue ... they would say, ‘there are pilots and there are crew chiefs and we will act as such.’ [But] I find that people are more – at least the crews that I have always worked on or worked with – they will do what you say and more ... they will go the extra mile ... if you do genuinely care for their wellbeing, the wellbeing of their family, and how they do they job. I think that we’re all the same – especially in that helicopter. I can kill them just like they can kill me” (P021).

In a previous section, individual disruptors and their effects on team processes were discussed in some detail. For example, an individual who is having marital problems may display certain cues that suggest to other team members that he has become disengaged or unable to maintain focus on work. Team members may be in a position to help him work through his problems or to allow for some slack in his performance. Team members are only likely to do this if they feel empathy for him. If they do not have empathy, they will interpret his behavior as weakness. As an infantryman said, “Why can’t you handle it on your own? You’re a grown man. You’re an infantryman. Handle your [expletive] business and come into work. Don’t go crying about it, don’t go bitching about it, don’t go looking for the easy way out ... Your

[expletive] wife is cheating on you? You leave her. [Expletive] it, dude. Your [expletive] family member dies? Alright, sorry man. You'll be alright. I've had all of these issues before. I'm good. Why can't he be good? Be a [expletive] man" (P113). Another infantryman said, "If that individual – especially in the infantry – if he is having issues handling certain situations, then he is probably in the wrong profession. He ain't going to get nothing out of the rest of us. We have all been there. That's what it all comes down to. You are not going to get ... From me? You are not going to get anything. You are not going to get no tears, no remorse. I feel no mercy for you" (P112). A third said, "I am like the exact opposite. If someone has an issue, I tell them to come to me – if they feel comfortable coming to me. I am not going to fix the problem, but I will help you to find a solution. If it's bad enough. You know? If you did something stupid and it's like 'I forgot this and blah blah blah' then 'Well, suck it up, Dude. That's your own fault.' But if it's something like ... I don't know ... like, you're having trouble at home or something like that. Sure, come talk to me" (P115).

Phase 5 of the Team Resilience Process: Reset

The fifth and final phase of the resilience process is reset. Two elements emerged as particularly important for reset: restoration and reflection. Participants recognized situations where a mission or tasking was accomplished, but they had exhausted all of their resources and felt ill-prepared to approach the next tasking/mission without first regenerating or restoring the resources. In addition, teams need to reflect upon what they have experienced so as to be able to learn from the experience and apply those lessons in the future. Indeed, teams do not always accomplish their tasking or mission, and the experience of "failure" can take time to understand.

The importance of both knowledge of results and participative discussion were underscored. For example, a NCO from Aviation explained, “things can happen and everybody can walk away, perfectly fine. But then again, you can do something and everybody dies. You can learn from all of that ... up to that point, what went wrong? We know they crashed. We know this happened. From there, let’s back track and see everything that they did. I would hope so. If those guys didn’t make it, they obviously gave up their lives doing what they did. Nobody wants to do that. What we do is very dangerous. But, I don’t want them to just die and not have something good come out of it. Make sense? If they gave their lives for a purpose and they may have done it doing everything wrong, now everybody else can see what they had done wrong and, uh, spend a little more time with our families ... ” (P025).

A trainer at the National Training Center suggested that teams are more likely to improve over the course of performance episodes if they experience failure and have the opportunity to reflect upon that failure. “Sometimes it is good to let someone fail a little bit because if someone is always jumping in too soon then they may not really feel like they failed. They may just feel like, ‘Oh, this is a team effort’” (P003). Another trainer explained that a leader’s support and provision of constructive feedback is essential for handling failure. “Failure is acceptable. It’s not ideal. I guess ... how you react to the failure is what determines whether it is good or bad. Command is ultimately responsible for setting up the idea that failure is OK as long as we are learning from our failures so that we don’t make that mistake again” (P004).

Participants also suggested ways that teams could reset as a collective, including: commiseration, humor, and group activity. For example, an infantryman explained, “We

talk about how some stuff is just stupid. Like, well, you feel like if you are not doing anything, you shouldn't be at work. But you are just pretty much sitting around and just wasting your time ... Or you are doing little minor things that really don't have nothing to do with what your job is" (P101). A NCO from Infantry said, "Being funny. That's about it. Everyone can talk shit. I mean, you get a good laugh when you go into work" (P115). Another NCO from Infantry suggested, "Do a squad barbeque. I mean, you invite everybody ... A barbeque is the go-to" (P122). And a third NCO from Infantry added, "I mean, I am cussing to get home from deployment, but a couple of weeks later we are going to have fun, shooting at each other with paint balls, bungee jumping ... whatever we decide. ATV-ing. And those are things that most of the guys click on" (P121).

Influential factors. Several factors can influence the reset phase of the team resilience process, including activities associated with previous phases, as well as knowledge of results, availability of and willingness to accept feedback, (down)time, management support, shared (or similar) experience, and unity. Time is, perhaps, the most influential factor because time offers a way to put distance between the experience and downtime affords the opportunity to engage in restoration/reflection activities. As a Soldier from Field Artillery said, "It's always the attitude and the culture, I guess, 'GO! GO! GO! GO! FAST! FAST! FAST! FAST!' So, when you get down time and there is not that element going on, make use of it. You have got to. Because if you don't and you try to stay in that same mentality of always having to go fast and jump on that next mission and attack it, constantly, then you burn yourself out" (P065).

Downtime allows team members an opportunity to “work on” things external to group. For example, to address those individual problems which may have spilled over into the work domain. Unfortunately, team members will sometimes use downtime to work on less critical or remaining tasks, rather than using downtime to restore or reflect. A pilot offered a few reasons for not using downtime for its intended purpose: “And that’s something that has taken me awhile, to actually work through that. But at a time where, you know, about two weeks, I actually laid down to rest for four hours and it was just constantly fixing the aircraft because when they come back they have holes in them and you know the last crew that come back had one of those instances where they were bleeding all over the aircraft. Well, all that’s corrosive, if I allow blood to eat my aircraft, well, that’s one aircraft I don’t have to go out and get the next guy. And it is taxing. And it’s one of those ‘Alright, I gotta be there for the guys who are a little bit more junior and I just trained them up before I got out here’ ... I gotta make sure that everything’s hit because as soon as that pilot turns the switch on, that aircraft needs to be up and ready to run. So, there are those situations. And that’s not helping them to be that tasked” (P016).

Management support can also affect reset. There is sometimes a perception that downtime needs to be filled with training or administrative duties. For example, a pilot reflected, "I hate to say this, but I have been around long enough to know – in most people’s commands, is they want to train, train, train, train, train and then deploy. And there is no time for them to take a knee and reflect on what they could have learned. They think a weekend is enough ‘Oh, I gave them a four day weekend. Now let’s go to the field.’ They keep executing the mission. That’s not enough. And you build chronic

fatigue in your Soldiers. And then by the time they get to Afghanistan – and I’ve seen it with units that have replaced us in Afghanistan – I’ve seen it in my own unit – the guys are just worn out. And they are missing things because they are worn out. And the same can go for units, as well" (P021). Similar to the role of leader support as described with respect to phase 2, mobilization, leadership can support the restoration and reflection by making resources available and freeing demands.

Unity is important for both restoration and reflection. Team members may be more likely to engage in restorative activities like commiseration, humor, and group activity if they feel they have something in common. In particular, shared or similar experience can affect how team members interact with one another during the reset phase. Several participants emphasized how unity can be achieved through shared or similar experience. For example, an infantryman explained, “They have to suffer together to get over it ... It’s just enduring something together. It’s a common ground. Like, ‘OK, you already went through the same thing that I did. We have that in common”” (P100). A NCO from Infantry agreed, “It’s the suck factor. You are getting shot at together on a mission together, haven’t bathed in a month, that stuff” (P122). And another NCO from Infantry said, “You don’t have to get in fire fights to suck on a mountaintop. It’s that everybody is out there, in pain, tired, just ready to go home ... that is what causes everybody else to do the same thing. We are all out here together. It seems like it is the most terrible day that you had that week or that month or whatever – that is the one that you will laugh about months down the road ... It becomes a great story. It’ll be the story of a lifetime” (P121). Similarly, an NCO from Air Defense Artillery said, “It just helps that trust aspect. You trust them a little more just because of

that. And the new privates coming in, just the fact that they joined is your ground to start on. You can just build on that” (P096). And an NCO from Infantry explained, "... you see it all over Facebook, the little memes, ‘you never are a true brother until you have almost died together’ and all that stuff, but for some people that is true. And in my first tour, I dealt with that a lot. I didn’t like going places, but my wife said that she would notice that when I was with Soldiers that I deployed with, I was a different person. She said I was more relaxed. And later on I realized that it was because I trusted the people that I was with that if something was to happen, they had my back. Not me looking over my shoulder every three seconds and stuff like that. It’s what I would see into it" (P105).

Team members are likely to have shared experiences, given the interdependent nature of teamwork arrangements. I wondered whether an individual could derive the same comfort and engage in the same restorative and/or reflective activities with someone who was not a part of the team – perhaps, a member of another team, who presumably had similar experiences. A NCO from Air Defense Artillery speculated, “I guess if you are sitting at a bar next to some old veteran that you’ve never met, you’re going to end up talking about stuff that you guys have both done, at different times, in different places. So, it isn’t going to be the same, but it is still there. It certainly isn’t going to be the same. You don’t have that intimate friendship that you would ... there is no comparison to that. But, yeah, you are definitely going to understand each other. I mean, it’s an easy start, I guess” (P100). An “easy start” but apparently not the same.

Small units typically engage in a formal after action review (AAR). During this time, they may receive knowledge of results, as well as feedback from leadership, and may have the opportunity to discuss their experiences with one another. The AAR is

most effective when constructive feedback is available to team members and team members are willing to accept the feedback. A trainer from the National Training Center said, “Some of the problems in the Army might stem from the fact that there isn’t a whole lot of external feedback on the everyday routine. Not necessarily going out to execute a mission, but on various operations” (P009). Another trainer explained, “The worst thing, I think, personally, that happens is a unit has an overwhelming victory and you go in the AAR and they are, like, “What do you mean? It worked.” Versus bringing out some struggling points because maybe we didn’t do as well on the backside as we would have liked to. And that goes back to making it harder for the units who are doing well ... because it is human nature. If you win ... If you struggle and maybe don’t do so well on the outcome, then you’re a little more open to go, ‘OK, what did we do wrong? What can we do better?’” (P005).

Concluding Remarks about the Team Resilience Process

Team resilience is herein conceptualized as a general (non-specific) process of managing disruption. The conceptualization of resilience as a process of managing disruption resonated with participants, specifically those with an opportunity to observe and evaluate team processes and outcomes. As a trainer from the National Training Center commented, “You’re not going to see it until they actually conduct a mission. Their interaction with each other might look like [they are prepared for success], but once they do a mission, that’s when you’ll be able to tell how well they execute everything. It’s all in how they respond to frustration” (P001).

Team resilience emerged herein as a five-phase iterative process. Team resilience does not require that teams engage in activities related to each of the phases. For

example, a team may never be exposed to disruptor cues, disruptors, and/or disruptions and thus never move beyond the monitoring element associated with the detection phase. Similarly, overlearned behavior is so well trained that, given a specific stimulus, it is elicited automatically. Thus, some adjustment can occur following a disruptor without resulting in conscious deliberation (determination phase). Some participants indicated, for example, that teams and/or team members will skip – either willfully or under orders – the reset phase and move directly on to the next assignment. Teams likely engage in phases concurrently. For example, teams may be determining a course of action and still actively monitoring for other potential disruptions. Indeed, because teams may be working toward multiple, simultaneous goals, they may be at different phases in the process with respect to each directive, respectively. Teams may also cycle back to previous phases of the process hence underscoring the iterative nature of team resilience (See Figure 7).

An ambiguous goal is a disruptor in and of itself. With an ambiguous goal, a team is left to fill in the blanks for themselves, assign their own purpose, and/or determine their own approach. If team members do not understand why they being directed to perform a task, they may not take it seriously, potentially compromising effectiveness, efficiency, and safety. Unfortunately, clarity is not always possible. Yet, teams continue to work as directed. To some degree, acceptance may counteract ambiguity. If team members can accept the bigger picture, then an ill-articulated smaller goal may still be accepted. Participants indicated that goals sometimes require adjustment. A trainer from the National Training Center explained, “You have to evaluate where they are at and then you have to make goals and expectations and then you have to

adjust those goals and expectations throughout the training rotation” (P002). Similar to an ambiguous goal, lack of planning or inadequate preparation can cause a disruption in and of itself. Indeed, having a plan is also important but not sufficient for success. Several participants suggested that it was not always possible to predict the likelihood of team success, despite evidence of thorough preparation.

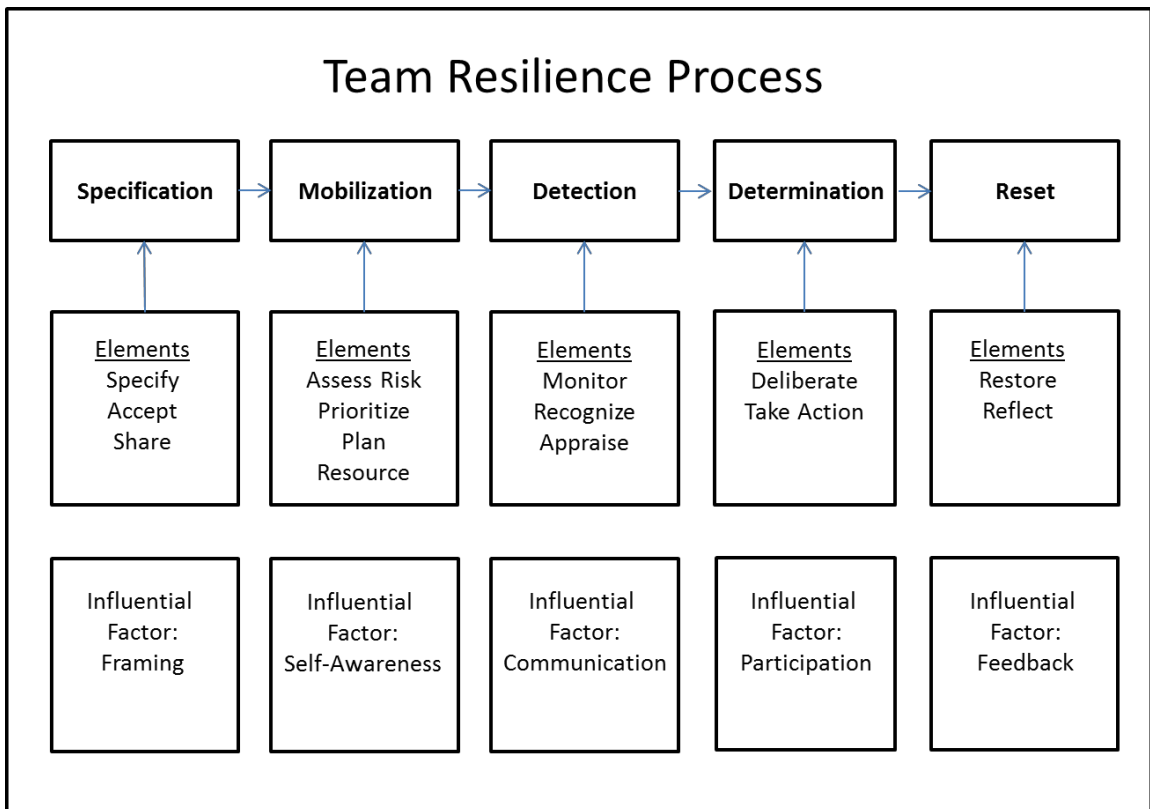


Figure 7. Illustration of the primary phases, elements, and examples of influential factors associated with the team resilience process. This illustration represents a single cycle or episode but the team resilience process is normally iterative to support subsequent performance episodes. Arrows depict a general process flow and not a rigid sequence. In actuality, phases may overlap, be skipped, postponed or repeated, and regression to previous phases may occur whenever needed.

Detecting disruptor cues, disruptors, and/or disruptions includes activities associated with monitoring, recognition, and ascribing meaning. This phase has two components similar to those found in Cognitive Appraisal Theory (CAT) as advanced by

Folkman and Lazarus (1984) – primary appraisal (what it is) and secondary appraisal (what it means) – but CAT theory does not account for monitoring. Sometimes, team members only know that a disruptor signals a potential problem, but do not understand what the problem means or how it might affect them. Given sufficient time, team members can discuss what disruptor cue/disruptor/disruption means with one another or solicit advice from an outside person (P033).

Although others outside of the team may detect disruptor cues, disruptors, and/or disruptions on behalf of the team, participants suggested that the process of addressing the disruption generally falls to the team. A NCO from Air Defense Artillery explained, “From higher level up, they let you do your thing. They let you handle your business” (P042). Another NCO from Air Defense Artillery agreed, “We try not to step in right away. Because the thing is, we try to give them the opportunity to handle their business. If that’s his Soldier, I’m not going to step in into his business” (P038).

In some cases, there is no opportunity to react to a disruptor cue, disruptor, and/or disruption. An infantry NCO recalled his experience of the death of one of his team members: “Out of the nine deployments, in my company, we didn’t lose anybody until the last deployment. And that affected everybody. We still maintained and still continued, but you could tell there was definitely a moment there where everyone was ‘this is really horrible.’ But we overcame it – we had no choice. I think that at that level – especially overseas where we were, you don’t have the time to necessarily mourn. You have to continue. In a way, it is good because you just keep going. You don’t have to think about it too much” (P108).

Restoration and reflection contribute to readiness. As stated earlier, teams rarely cooperate to address only one shared goal. Instead, they will address multiple – sometimes overlapping, sometimes consecutive – goals. Therefore, it is possible that resources can be sufficient to handle a goal but doing so can effectively deplete resources for successive goals. There needs to be a period of restoration, where teams are either provided or seek out or otherwise regenerate their individual and collective resources. Having a restored resource bank allows teams to continue to function (be ready for the next tasking, mission). In addition, there should be a period of reflection, whereby teams consider knowledge of results and feedback and internalize lessons learned/make changes so as to be strengthened for next goal. This may include writing SOPs.

Relationship of Small Unit (Team) Resilience to Psychological Resilience (RQ3)

The third and final research question addressed the relationship between the substantive theory of small unit resilience and the Army's conceptualization of psychological resilience. The Army has loosely defined psychological resilience as “the mental, physical, emotional, and behavioral ability to face and cope with adversity, adapt to change, recover, learn, and grow from temporary setbacks” (R2C, 2013, p.3). The Army's Ready and Resilient Campaign is based on the premise that psychological resilience can contribute to unit readiness.

Psychological resilience, as defined above, is a state and as such can be affected by training and/or intervention. In an effort to develop and maintain a ready Force, the Army has created a number of tools aimed at promoting and assessing psychological resilience, including the Global Assessment Tool (GAT) and the Master Resilience Trainer (MRT) program. The GAT is an online assessment tool designed to provide

Soldiers with information about their psychological health, including confidential summaries of personal results and comparisons with others similar (e.g., demographics) to themselves. Soldiers are required to complete the self-report survey annually (Lester et al., 2011). Non-commissioned officers are selected to participate in the 10-day Master Resilience Trainer workshop where they are taught the fundamentals of resilience-boosting behavior and cognitive strategies. Program participants are expected to return to their duty stations and deliver similar instruction to their subordinates and other Soldiers. Both the GAT and the MRT program are grounded in positive psychology (Reivich, Seligman, & McBride, 2011), and conceptualize resilience as it is related to four domains (emotional, family, social, spiritual) and a set of core competencies (self-awareness, self-regulation, optimism, mental agility, character strengths, and connection). Because military outcomes are largely unit-driven, the Army is interested in exploring whether a phenomenon akin to psychological resilience occurs at the unit-level.

At any point in the team life cycle, the configuration of individuals yields a measurable (though not necessarily shared) degree of resilience in teams. It is plausible that some composite of individual team member resilience (e.g., an average, disparity, or select team member value) may be meaningfully associated with short- and/or long-term team outcomes. This value could also be used to make comparisons across teams. However, the cross-discipline review presented at the beginning of this dissertation suggests that it may be premature to directly extend what we know about psychological resilience to the unit. Indeed, like other multilevel constructs (e.g., efficacy, performance), resilience may prove qualitatively different across levels of analysis.

Rather than set out to map small unit resilience directly onto the Army's current conceptualization of psychological resilience, I opted to use a grounded theory approach to explore the breadth of small unit experiences and to allow the data to inform a substantive theory of team resilience. The most salient difference between the Army's current conceptualization of psychological resilience and the substantive theory of team resilience developed herein is that the former describes an emergent state, whereas the latter describes a process. Both conceptualizations associate resilience with readiness, whereby resilience is a means for promoting the readiness of the force. Readiness was identified as an important team outcome associated with the process of resilience. Both conceptualizations accommodate multiple response trajectories. For example, the definition provided in the R2C materials suggest that individuals can cope, adapt, recover, learn, and/or grow from experience with disruption(s). These trajectories may be similar to those of maintenance (cope), transformation (adapt), and growth (learn/grow), as well one more complex trajectory (recovery) – although the decay trajectory identified herein does not appear to be associated with psychological resilience.

Small unit resilience has components that overlap with psychological resilience. Each of the four domains of psychological resilience (emotional, family, social, and spiritual) are all captured either directly or indirectly by the substantive theory advanced herein, as are some of the core competencies. The four domains are included, primarily, in the sense that spillover from these domains can affect how team members work together and, thus, function as disruptors. Self-awareness is influential in both conceptualizations of resilience, and is particularly important as it relates to the mobilization for collection action phase of the team resilience process. For psychological

resilience, self-awareness is associated with identifying counter-productive thoughts, feelings, and behaviors. For team resilience, self-awareness is about recognizing the team's strengths and weaknesses. For psychological resilience, connection is defined as "building strong relationships through positive and effective communication, empathy, willingness to ask for help, and willingness to offer help" (Reivich et al., 2011, p.27). Many aspects of connection are found in the substantive theory, but the importance of their relative effect has been associated with different phases in the process. For example, communication is associated with the specification and acceptance of a shared directive, whereas empathy is associated with determination of a (potential) course of action. Reivich et al. define self-regulation as "the ability to regulate impulses, thinking, emotions, and behaviors to achieve goals" (p.27). To the extent that impulses, thoughts, emotions, and behaviors can function as disruptors, it could be argued that the process of small unit resilience, itself, is indicative of self-regulation.

The current study was framed as an investigation of unit adaptability. I chose to debrief participants toward the end of our discussion, and asked whether their responses would have changed had I asked them to help me understand resilience rather than adaptability in small military units. Indeed, whenever the discussion was focused explicitly on resilience, participants had a difficult time breaking free of what they believed they knew about psychological resilience and applying it to the unit. In many cases, the result was an assumption that team resilience was simply a function of the combined level of psychological resilience of team members – or, perhaps, some speculation that team resilience could be supported by identifying and maintaining a specific number of resilient team members. However, one infantry platoon leader

suggested, “[Unit]¹⁰ resiliency is probably more limited to just their ability to execute missions as they come or whatever that particular unit’s mission set is, without any distractors and detractors that would affect that unit’s ability to carry out that mission. At the small unit, resiliency is not just getting the mission done, but what is ... what is that person’s state of mind, what is their ability to ... It kind of gets more into that. A small unit leader, if you ask them about resiliency, he is probably going to lean more towards personal feelings and their ability to juggle military obligations with personal obligations as opposed to organizational resiliency, which is more about ‘Is he getting enough sleep? Is he getting enough food?’ If he is getting those things, he should be able to do the mission” (P107). Indeed, as the results of this study have demonstrated, resilience at various levels of analysis in the military may differ, but not wholly incompatible.

Discussion

The current literature on resilience does not yet provide a sound and definitive direction for how resilience needs to be approached at the team level. The current study was designed to address this knowledge gap through a comprehensive summary of the research literature in and of small groups and systems, articulation of a framework to direct the synthesis of existing and future team resilience-related efforts, and construction of a substantive theory of team resilience based on empirical data collected from high-functioning combat teams in the United States Army. These foundational efforts are believed to be critical for the development of our scientific understanding of team resilience.

Team resilience is herein conceptualized as a general (non-specific) process of managing disruption which consists of five primary phases: *specification*, *mobilization*,

¹⁰ The term ‘unit’ typically refers to a larger collective, i.e., the Company (roughly 80-100 Soldiers).

detection, determination, and reset. In Phase 1, specification, teams engage in activities related to the specification and acceptance of a shared directive. In Phase 2, mobilization, team prepare for collective action by conducting risk assessments, generating contingency plans, prioritizing multiple or competing taskings, and the specification of resources. In Phase 3, detection, teams actively and continuously monitor themselves, their interactions, and their environment for disruptor cues, disruptors, and disruptions. Once a team recognizes the presence or onset of a disruptor cue, disruptor, or disruption, the team must interpret its meaning. In Phase 4, determination, teams explore potential options for addressing a meaningful disruptor cue, disruptor, or disruption; and make decisions about whether, when, and how to adjust in response. In Phase 5, reset, teams take pause to restore resources and relationships and to engage in reflection. For each phase, a set of influential factors were also identified. These factors were discussed in terms of how they could benefit, hinder, or change team characteristics, interactions, and/or behavior.

The five phases represent a single, complete cycle or episode of team resilience, and teams are more likely to experience success if they move through each of the five phases. In addition, there was little discussion of small military units completely disbanding after a single performance episode, and so the team resilience should be conceptualized as an iterative process. Team resilience is not necessarily linear. Indeed, results indicate that teams may engage in multiple phases concurrently, return to previous rather than move on to subsequent phases, and/or skip phases altogether. Teams were most likely to skip the reset phase – either because they were quickly assigned a new

directive or because they willfully the reset period engaged in activities that inhibited restoration and/or reflection.

The current study is one of the few known efforts designed to describe *how* teams manage disruption. To date, there have been few studies purporting to measure the construct of team resilience, and most have conceptualized team resilience as either a global property of the team or as an emergent state. Perhaps only two studies (Morgan, Fletcher, & Sarkar, 2013; 2015) have explicitly conceptualized team resilience as a process. These authors used a variety of qualitative methods, including focus groups and content analysis of autobiographical materials, to explore the process of team resilience as experienced by members of elite sports teams (2015) and also to identify a set of influential factors (2013). The authors define team resilience as “a dynamic, psychosocial process which protects a groups of individuals from the potential negative effect of stressors they collectively encounter” (2013, p.567). Their findings suggest that elite sports team resilience is a function of five “psychosocial processes”, including transformational leadership, shared team leadership, team learning, social identity, and positive emotions; and four protective factors, including group structure, mastery approaches, social capital, and collective efficacy.

The Morgan et al. (2013, 2015) model of team resilience bears striking similarity to the Army’s conceptualization of psychological resilience, albeit in terms of group-level phenonema rather than individual-level phenomena. Reivich et al. (2011) identify six core competencies of psychological resilience: self-awareness, self-regulation, optimism, mental agility, character strengths, and connection. There is conceptual overlap between many of the competencies, factors, and psycho-social processes identified through these

diverse research efforts. For example, connection is defined as “building strong relationships through positive and effective communication, empathy, willingness to ask for help, and willingness to offer help” (p.27) and may overlap conceptually with two of Morgan et al.’s psychosocial processes, namely shared team leadership and social identity. It is worth noting that the Morgan et al. (2013) began each session with “a general overview of the concept of resilience ... and participants were told that the aim of the research was to explore what team resilience meant to them in the context of elite sport” (p.551). The specific nature of how the concept of resilience was initially presented to participants is unclear. The semi-structure interview guide included items which explicitly probed participants’ understanding of the term resilience, including “From your experiences what are characteristics of a resilient team?” and “From your experiences, and bearing in mind all that we have discussed so far, how would you define team resilience?”. It is possible that the protocol used for data collection may have unintentionally primed participants to discuss only those elements of their experiences that seemed especially on point. Given the research was designed by sports psychologists, it may not be surprising that, under these circumstances, participants would contribute to the development of a conceptualization of team resilience that is very similar to that of psychological resilience.

One of the primary strengths of the current study is that the protocol used to collect data was not bound to a particular definition of resilience, *a priori*, and so allowed participants to openly discuss their experiences as a part of a small military unit without being asked to draw to a specific, pre-selected type of disruptors or disruptions, outcome, response trajectory, or set of circumstances. Indeed, when the conversation shifted to a

discussion of resilience during the session debrief, many participants suggested that their responses would have been different and proceeded to frame their discussion of small unit resilience in direct parallel with psychological resilience as conceptualized by the Army.

Despite differences in how resilience was presented to participants, there are some similarities between the substantive theory advanced herein and the model proposed by Morgan et al. Both efforts identified elements of a process of resilience that reflected a strong leadership presence and emphasized the importance of participation in group decision-making (shared team leadership), reflection (team learning), team identity and unity (social identity), affect and emotional contagion (positive emotions). In addition, all four protective factors identified in the Morgan et al. model can also be found in the substantive theory presented herein. These similarities provide some empirical validation for the substantive theory advanced herein and also suggest that the process of resilience may generalize to other types of teams.

An additional strength of the current effort is that the model accounts for time and illustrates how team members move through each phase and progress or regress in their efforts to manage disruption and continue working toward their collective goal(s). Alliger et al. (2015) offer an illustration of team resilience that is akin to the process model advanced herein – and more so, perhaps, than the Morgan et al. studies. Although the authors conceptualize team resilience as an emergent construct, they suggest that teams engage in three “behavioral strategies” when addressing challenges (similar to disruptors and/or disruptions): minimize, manage, and mend. The *minimize* behavioral strategy encompasses proactive planning and the active search for challenges. The

minimize behavioral strategy is very similar to the combination of the mobilization and detection phases of the team resilience process described herein. The *manage* behavioral strategy encompasses appraisal and decision-making efforts, which closely relates to (at least part of) detection and determination as described in the current study. The *mend* behavioral strategy is reactive and is concerned with debriefing, learning, and situation awareness, and is similar to the reset phase described herein, which includes both restoration and reflection. However, it can be noted that the authors do not present specific empirical support for their claims, and instead cite forty years of their own experience working with teams of various types. Nonetheless, their model most closely aligns with and thus offers convergent support for the current findings.

Taken together, similarities among the three abovementioned models suggest that studies of team resilience may generalize across different types of teams. However, as suggested in the introduction, without some way to provide conceptual clarity to the term “resilience”, it remains unclear how we could ever agree that resilience has occurred. Indeed, the literature review revealed an opportunity to construct a framework for team resilience that could support and guide the articulation of multiple conceptualizations of team resilience.

The resulting team resilience framework is a heuristic approach that can be used to convey the key components – who (*of whom*), what (*to what*), why (*for what*), when (*at what time*), and where (*under what circumstances*) – of a particular conceptualization of team resilience. The current application of the team resilience framework guided the description of disruptor cues, disruptors, disruptions and outcomes prevalent in small

military unit work arrangements, as well as meaningful temporal and contextual considerations for understanding the process of small unit resilience.

The current application of the team resilience framework yielded four findings of particular interest. First, a diverse array of disruptors was able to be identified. Through comparative analyses, disruptors were found to cluster together as a function of their source: *individual, compositional, relational, structural, situational, or contextual*. This resulting classification scheme may prove useful for determining consistency of effects or relationships across “similar” disruptors with respect to other meaningful aspects of team resilience. Second, participants identified seven distinct team outcomes, including *effectiveness, efficiency, improvement, readiness, safety, satisfaction, and unity*.

Members of small military units do not limit how they evaluate team “success” to traditional performance metrics. However, through discussions with small unit members, their leaders, and trainers, it became apparent that an outcome may be assigned greater or lesser relative importance depending on who is providing the rating (e.g., self or other) and under what circumstances (e.g., training, deployment) the outcome is being rated.

Third, participants also described a set of simple response trajectories (*maintenance, growth, decay, and transformation*) that can be combined to create more complex behavior patterns. None of these simple trajectories are inherently good or bad. For example, a team may maintain a level of performance that is either at, above, or below standard. It is only when the maintenance trajectory is compared against some criterion that the team’s level of performance takes on meaning. It is conceivable that complex changes in responses over time can also happen at, above, or below a standard. Thus, the traditional “recovery” trajectory may still leave a team operating below standard. This

finding suggests that one must consider more than the shape of the trajectory, but also the relative value associated with each associated measurement. And fourth, results suggest that broad circumstances (e.g., Big Army goals, ARFORGEN cycle) can shift key elements of the larger framework. For example, certain disruptors are more likely to present in garrison and also, certain outcomes are more likely to be valued in garrison, as opposed to on deployment. This may be similar to the culture/climate distinction in psychological and organizational literature (Wallace, Hunt, & Richards, 1988). The identification of broad circumstances under which team processes occur may be helpful in identifying potential moderators of disruptor-disruption-outcome relationships relevant to the process of team resilience in these circumstances. Taken together, these results suggest that the framework developed in this study is useful not only as means of providing a rich, structured description of the team context, but that these descriptions generated – singularly or when compared across studies – can bring about new, interesting research questions and hypotheses.

The proposed utility of the framework for synthesizing existing and future efforts remains to be tested. While using this resilience framework to accommodate multiple conceptualizations of team resilience may seem irresolute, there is as yet insufficient guidance from the larger literature on resilience to bound and direct the conceptualization of a team resilience as a single phenomenon. A broad approach, as offered by the expanded team resilience framework developed here, can support calls for studies designed to investigate whether team resilience can be inferred from multiple criteria (Orbist et al., 2010), as well as to investigate whether team resilience can be generalized across diverse disruptor cues, actual disruptors, and disruptions (Scholz et al., 2012)

and/or outcomes (Vurgin et al., 2011). Indeed, efforts organized using the expanded team resilience framework can better support meaningful inferences about the nature of resilience as we move across levels of analysis; that is, in efforts to draw inferences about the possible relationships between team member resilience and team resiliencies.

Indeed, there are numerous other constructs that deal with the management of disruption, including vulnerability, adaptation, and coping. To the extent that both vulnerability and adaptive capacity are proactive strategies for managing disruption, and (collective) coping is reactive, none provide a comprehensive understanding of how teams might manage disruption. Some authors have argued that vulnerability and adaptive capacity are elements of a process of resilience (e.g., Bene, 2012). Indeed, identifying vulnerabilities and resources were both aspects of the mobilization element of the current substantive model of team resilience. It is more difficult to differentiate adaptability from resilience, when both are conceptualized as processes – especially if we can agree that adaptability can be proactive as well as reactive. The most salient difference between adaptability and team resilience as described herein, is that adaptability does not link disruptions to multiple trajectories; specifically, adaptability does not account for maintenance (continued, stable performance). This perspective – that resilience subsumes adaptability – is in direct contrast to the position taken by another group of researchers, who view resilience as an emergent state and state “resilience is one of several outcomes” associated with adaptability (Kennedy, Landon, & Maynard, 2016). Given these outstanding differences of interpretation, future efforts can investigate whether the process of team resilience is sufficiently distinct from the process of team adaptability.

Practical Applications

The US Army defines psychological resilience as “the mental, physical, emotional, and behavioral ability to face and cope with adversity, adapt to change, recover, learn, and grow from temporary setbacks” (R2C, 2013, p.3). Although psychological resilience, as defined, and the substantive theory presented herein are marked by salient differences, the two are not incompatible concepts. While the emphasis of the Army’s Ready and Resilience Campaign (R2C) is on promoting a culture of resilience, the end goal is to promote a ready Force. There is nothing in the language of R2C documents that suggest resilience must be defined consistently across levels of analysis. Indeed, as the cross-discipline review and the substantive theory developed herein suggest, psychological resilience and small unit resilience are not identical constructs. Psychological resilience – to the extent that it is associated with individual thoughts, emotions, and behaviors during work activity – is likely to affect small unit resilience, particularly in the early phases of team resilience when team members are negotiating goals and gearing up for action. Team resilience may, likewise, impact psychological resilience. For example, the Army’s conceptualization of psychological resilience emphasizes the core competencies, which include self-awareness, self-regulation, optimism, and connection. A team that has a strong shared identity and sense of teamness, and that experiences success as a function of how they manage disruptions, may also serve as a protective factor for an individual that is part of that team.

Conceptualizing small unit (team) resilience as a process implies a capacity for change that is worth investigating further. If, in a work context, the sequence and nature of the process of resilience can be reliably identified and observed, then it may be

possible to identify periods of vulnerability that place this process and team at some risk of failing, and periods of strength when it is least at risk. It would then be possible to design interventions that can support appropriate changes in team behavior and/or provide better guidelines adopting a resilience trajectory to reduce this risk. In addition, a proactive training approach could be adopted to build individuals' capacities to adapt so they are better prepared to manage their resilience trajectory in the face of actual or potential disruptions. The substantive theory of small unit (team) resilience developed herein can be used to inform the development of future unit-level assessments, training, and other interventions, similar to the Global Assessment Tool (GAT) and Master Resilience Training (MRT), aimed at improving the readiness and resilience of the Force.

The cross-disciplinary review of the literature of resilience in and out of small teams suggested considerations for the development of a measurement of team resilience (see Introduction: An Expanded Team Resilience Framework). At the time of the review, most efforts to measure team resilience relied upon measures developed at the individual level, often using a referent-shift to align levels of theory, measurement, and analysis. This strategy assumes isomorphism in construct across scales and is problematic if team resilience is different than psychological resilience. Since the conclusion of the cross-discipline review, two relevant efforts to create and validate team resilience scales have been identified (e.g., Sharma & Sharma, 2016; van der Beek & Schraagen, 2015).

Sharma and Sharma (2016) based their measure on Morgan et al. (2013, 2015) conceptualization of team resilience, citing it as the “most widely explored theoretical scaffold in resilience literature” (p.50). The authors reviewed the literature to generate items indicative of each of the four promotive factors (group structure, mastery

approaches, social capital, and collective efficacy) identified as essential to team resilience theory. The scale was validated using a sample of executive teams from the IT Industry and offered as a diagnostic tool that can be “generalized to any work domain” (p.XX). van der Beek and Schraagen (2015) constructed a scale based on Hollnagel’s (2011) theory of system resilience and complimented with two additional components representing leadership and cooperation within a multi-team system. Both scales offer promise because they have been grounded in theory and have been developed and validated for use with teams.

A similar approach could be used to develop a self-report measure based on the substantive theory of team resilience developed herein. The scale could be used to assess how teams are managing disruption at different points in time. This strategy would be consistent with how psychological resilience is currently assessed using the GAT and may have utility with respect to evaluating readiness and/or influential factors before a team is assigned to perform a directive. Although it is difficult to imagine that members of small military teams will have the opportunity to pause mid-process and complete a survey of their experiences and expectations, a similar data-capturing approach was implemented during military exercises in order to assess situational awareness (Endsley, 2000). Alternatively, it would be beneficial to continue to extrapolate observable behaviors associated with each of the phases and primary elements associated with the process of small unit resilience, an approach that would not require interrupting team behaviors. The Navy has a similar effort underway that affords leaders a means of assessing the resilience of submarine tactical operation teams through observable behavior (Smallidge, Jones, Lamb, Feyre, Steed, & Caras, 2013). By monitoring specific

behavioral indicators of team processes a team or an external observer could identify an intervention or training could be administered to an underperforming work team to bolster improvement or course correction and thus increase likelihood of a desired outcome.

Trainings designed to promote team resilience will be successful to the extent teams can effectively apply knowledge and abilities acquired in training to respond to unexpected conditions in the transfer environment; *transfer generalization*.

Unfortunately, because not all disruptors are likely to be predictable, training programs that are limited to the development of only procedural knowledge are not sufficient to promote the successful management of disruption in transfer (Stokes, 2009). Transfer generalization is more likely when training includes the opportunity for team members to develop general, shared schemas of team processes (Gorman et al., 2010), which afford team members flexibility in the transfer application of knowledge and skills acquired during training (Cannon-Bowers & Salas, 1998; Hockey et al., 2007). This form of training requires teams to engage in more than their routine activities in order to be better prepared to respond to unexpected demands. One way of systematically imposing unexpected demands is to introduce feedback control perturbations into the work system of which teams are a part. This causes teams to be challenged to alter their coordination strategies. The Royal Norwegian Naval Academy recently made a similar observation. The Academy observed the performance of cadet naval teams while participating in both live and simulated complex training exercises. The researchers found that teams who were presented with resilience-related “factors” (disruptors) during simulated exercises achieved greater success on subsequent live exercises than did their counterparts without

this prior experience. These authors suggest that resilience training can be improved through the development of realistic simulations of disruptors known to have an effect on team resilience (Mjelde, Smith, Lunde, & Espevik, 2016).

As stated earlier, not all disruptors can be identified *a priori*, nor are the effects of disruptors consistent for all teams across all situations at all times. In a single related effort, Dove-Steinkamp and Henning (2012) systematically perturbed intra-team communications during skill acquisition by applying a constant closed-loop transmission delay, ranging from 2 to 6 seconds. Interestingly, performance in the presence of a novel transmission delay was affected by the magnitude of the perturbation imposed during skill acquisition. These results suggest that the quality of perturbation introduced during training can have a meaningful impact on team performance outcomes, both during and after training. Collectively, this line of research indicates that small military units may benefit from perturbation training and that, while these units are likely currently exposed to a host of disruptors during training exercises, there may be value in introducing disruptors at random to allow teams an opportunity to handle disruptions to procedural routines while in training and thus prepare them to better manage disruption in the field.

Concluding Remarks

The current study has offered both a substantive theory of small unit (team) resilience as a process, and a framework for contextualizing multiple, plausible conceptualizations of this team resilience process. The propositions generated by the resulting substantive theory of resilience will need to be tested in varied contexts and across multiple time points. To fully develop a formal theory of unit resilience in the military, future efforts will necessarily focus on other branches within the Army (e.g.,

Combat Support, Combat Service Support), higher echelons of organization (e.g., platoon through brigade, etc.), different duty statuses (e.g., Reservists), and other military services (e.g., Navy), as well as seek convergent and divergent support from other high risk occupations (e.g., emergency responders). The results of the present study are expected to provide a foundation for developing tools for measuring, organizing, and/or training resilient teams in a variety of high-demand contexts.

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Appendix A

Illustration of Grounded Theory Approach

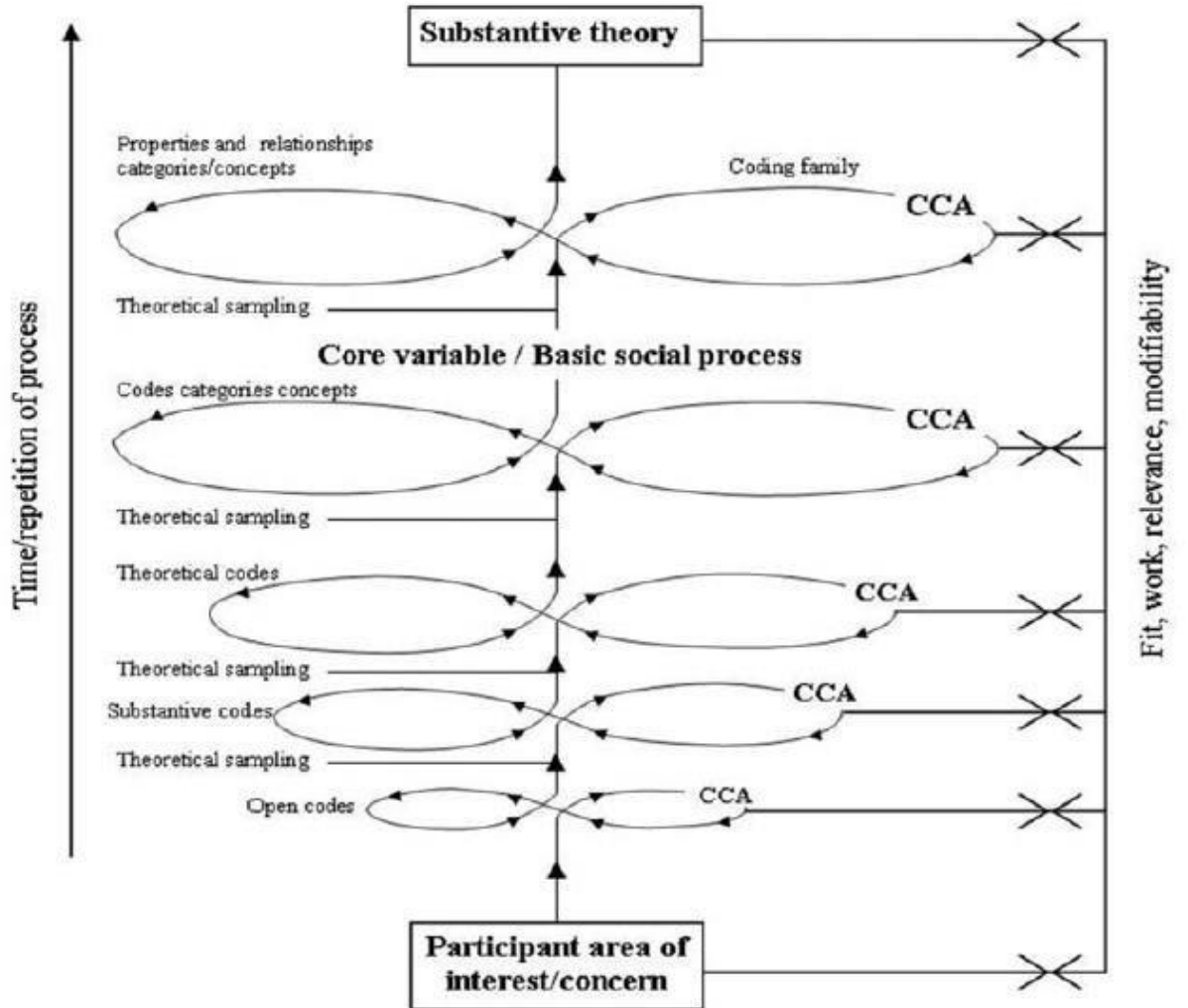


Figure 1. A model for generating substantive theory (Andersen, 2008). CCA: constant comparative analysis.

Appendix B1

INTERVIEW PROTOCOL

Section 1: Introductions & Warm Up Questions

Hello. My name is Megan. This is _____. We are researchers with the Army Research Institute at Fort Belvoir, VA. We've traveled to _____ to conduct a series of interviews with you and other Soldiers as part of an effort to learn more about how members of military units collectively perceive and adapt to challenge. We believe that your role as _____ gives you a unique perspective on unit performance and we would like to have a candid, open discussion about your experiences _____. We have prepared a series of questions to ask you. We ask for only about an hour and a half of your time today.

Before we begin, we want to assure you that your participation is strictly voluntary. You should not feel obligated to participate in this interview. We are also requesting your permission to record this interview. To protect your identify, your personal information will in no way be linked to any record of today's conversation.

The information that you provide today will be used for research purposes. Certain comments may be quoted to illustrate points identified through our analysis and used to prepare reports and other research products. To ensure confidentiality, we will remove all personal identifiers before making use of your comments.

Here is a copy of our consent form, which restates the purpose and nature of our research. Please take a moment to read over the document. I am happy to address any questions that you might have as you read. If you agree to participate in this study and to have your comments recorded, please sign the appropriate lines on the last page of the document.

- *Distribute Privacy Act Statement and Informed Consent*
- *Review signature page to verify nature of consent*

Thank you for volunteering your time today. Before we begin, I would like you to provide some basic information about yourself. When you are finished, simply turn the survey face-down. I will collect them at the end of our interview.

- *Distribute Information Sheet*

Thank you.

- *If all participants agree to be recorded:*

You have (each) indicated that you agree to have our conversation recorded. I am going to turn on the recorder now. If at any point you would like to say something "off the record", just let me know and I will pause the recording. I will continue to take notes at your discretion.

<< *Turn on recorder.* >>

- *If not all participants agree to be recorded:*

I will not be recording our conversation today. I intend to take notes at your discretion. If at any point you would like to say something “off the record”, just let me know and I will stop taking notes while we discuss that topic.

For interviews with participants who are in a position to observe or evaluate unit performance, use items in Section 2 (supplemented with probes in Section 4).

For interviews with participants who are members of an identifiable, small unit, use items in Section 3 (supplemented with probes in Section 4).

Section 2: Unit Adaptability (as OBSERVER)

I am interested in learning about the factors that affect how members of small military units, like squads and tank crews, work together and how units respond to these challenges. I believe that your role as [insert role] affords a unique perspective of small unit behavior and I would like to ask you about your observations. I would like for you to think broadly about what might be considered a unit challenge. Please feel free to draw on experiences that did not occur at work, but none-the-less affected how the individuals that you observed worked together. Although I introduced the term “adaptability” earlier in my description of this study, we can also think more broadly about unit responses. For example, unit responses may take the form of changes in behavior, changes in perceptions of the work or unit, or changes in feelings about the work, the unit or factors affecting the unit.

In order to understand these processes and how you have observed them in different units and in different settings, I would like for you to walk me through your past experiences observing small work groups. I’d like to hear about your earliest experience as an observer of small military units and how this experience was similar or different from your experiences as an observer of small work groups before joining the military. I’d also like to hear about the different units you might have observed since that time. Then I would like to hear your thoughts on factors that affect how unit members work together. Throughout our conversation, it will be helpful for you to share specific details of some activities that stand out for you. I want you to have an opportunity to describe your experiences in as much detail as you are comfortable. I will limit my questions to those that will prompt you for more detail or for clarification.

I would like to begin by learning a little bit about your experiences in the Army. Tell me about yourself, your military experience ...

- What is your current position/title?
- How long have you been in the military? In your current position?

Tell me about your decision to become _____ and the memories you have of your first role as _____ for the military.

- Had you held similar positions before joining the military? [Ask for description]

- In what ways have your experiences as _____ – military and nonmilitary – been similar? In what ways have your experience been different?

Tell me a little bit about your role as _____.

- In what way do you have the opportunity to observe/evaluate unit performance?
- What types of units do you have the opportunity to observe/evaluate?

What are some of the things that units struggle with? *Seeking multiple examples of challenges ...*

- How do you know when a unit is struggling with [*this specific challenge*]?
- Do all units struggle with [*this specific challenge*]?
 - Describe a unit that seems to be unaffected by [*this specific challenge*].

Tell me about a unit that has been able to recover from [*this specific challenge*].

- What do you think might affect a unit’s ability to recover from [*this specific challenge*]?
- How quickly could a unit recover from [*this specific challenge*]?

Tell me about a unit that has not been able to recover from [*this specific challenge*].

- What do you think affected the unit’s ability to recover from [*this specific challenge*]?

How does the experience of [*this specific challenge*] affect future unit performance?

Describe a time when a unit had been pushed too far.

- How did you know that the unit had been pushed too far?
- Describe the short-/long-term consequences of a unit being pushed too far.
- Do these consequences apply to all members of the unit?

At any point, are units allowed to fail at their mission?

- If so, what might “failure” look like? *Multiple examples ...*

What is the nature of the feedback given to units about performance?

- Who receives the feedback, what points does it cover, how detailed, are there suggestions for improvement ...?
- How do you know when a unit (or unit member) is receptive to the feedback you have provided?

Section 3: Unit Adaptability (as PARTICIPANT)

I am interested in learning about the factors that affect how members of small military units, like squads and tank crews, work together and how units respond to these challenges. I would like for you to think broadly about what might be considered a unit challenge. Please feel free to draw on experiences that did not occur at work, but none-the-less affected how individuals worked together. Although I introduced the term “adaptability” earlier in my description of this study, we can also think more broadly about unit responses. For example, unit responses may take the form of changes in behavior, changes in perceptions of the work or unit, or changes in feelings about the work, the unit or factors affecting the unit.

In order to understand these processes and how you have experienced them over time, I would like for you to walk me through your past experiences with small work groups. I’d like to hear about your earliest experience working in a small military unit and how this experience was similar or different from your experiences as a part of small work groups before joining the military. I’d also like to hear about the different units you might have been assigned to since that time. Then, perhaps we could concentrate on experiences you have had in your current unit. Throughout our conversation, it will be helpful for you to share specific details of some activities that stand out for you. I want you to have an opportunity to describe your experiences in as much detail as you are comfortable. I will limit my questions to those that will prompt you for more detail or for clarification.

I would like to begin by learning a little bit about your experiences in the Army. Tell me about yourself, your military experience ...

- What is your current position/title?
- How long have you been in the military? In your current position?

Tell me about your decision to join the military and the memories you have of the first unit to which you were assigned.

- Had you held positions in small work groups before joining the military? [*Ask for description*]
- In what ways have your experiences being a part of a small work group – military and nonmilitary – been similar? In what ways have your experience been different?

Tell me a little bit about your role as a part of [*this particular unit*].

- How did you become a part of [*this particular unit*]?

Describe a typical day for [*this particular unit*].

- Tell me about a good day for [*this particular unit*].
- Tell me about a bad day for [*this particular unit*].

What are some of the things that [*this particular unit*] struggles with? *Multiple examples of challenges ...*

- How do you know when [*this particular unit*] is struggling with [*this specific challenge*]?
- What do you think might affect [*this particular unit's*] ability to recover from [*this specific challenge*]?
- What do you think might affect how quickly [*this particular unit*] recovers from [*this specific challenge*]?
- Describe the short-/long-term effects of this experience for the [*this particular unit*].
- Do these consequences apply to all members of [*this particular unit*]?
- How do members of this [*particular unit*] unwind after [*this specific challenge*]?

Describe a time when [*this particular unit*] had been pushed too far.

- How did you know that the unit had been pushed too far?
- Describe the short-/long-term consequences of a unit being pushed too far.
- Do these consequences apply to all members of the unit?

In what ways can [*this particular unit*] learn to better handle future challenges?

- In what ways can [*this particular unit*] be taught to better handle future challenges?

What is the nature of the feedback given to [*this particular unit*] about its performance?

- Who receives the feedback, what points does it cover, how detailed, are there suggestions for improvement ...?
- How often does [*this particular unit*] receive feedback?
- Is the unit (or are unit members) generally receptive to feedback?

Section 4: Probes for Further Detail

Can you describe [*the phenomenon*]?

- How often does [*the phenomenon*] occur?
- Does [*the phenomenon*] affect everyone?
- Is the experience of [*the phenomenon*] the same or different for each unit member? How?
- What caused [*the phenomenon*]?
- What contextual and intervening conditions influenced [*the phenomenon*]?

What strategies or outcomes resulted from [*the phenomenon*]?

- What were the consequences of these strategies/outcomes?

How did the process unfold?

- What were the major events or benchmarks in the process?
- What were the obstacles to change?

Who were the important participants?

- How did they participate in the process?
- What were the outcomes?
- Were the outcomes shared equally across participants?

Section 5: Closing Questions/Remarks

This concludes the formal part of the interview process. Thank you for your participation. We really appreciate your time and your comments.

We recognize that Soldiers are exposed to a host of demands (e.g., high OPTEMPO, submersion in foreign culture), each potentially stressful, and that these challenges may have important implications for physical and psychological well-being. The Army is interested in promoting the well-being of its Soldiers and has supported a number of research, training, and intervention programs aimed at developing a ready and resilient Force. There has been a lot of research focused on the related topics of stress, adaptability, and resilience.

What seems to be missing is a clear direction for understanding these phenomena at the unit level. Specifically, it is unclear how the modern military context affects collective perceptions of challenge, the way units of Soldiers try to adapt to perceived challenges, or the consequences of these perceived challenges and behavior changes. Our research is focused on better understanding these issues. We hope that this line of research will be used in the development of future unit-level assessments, training, and other interventions aimed at improving the readiness and resilience of the Force.

This interview is an important first step in our research effort. Now that you know the full scope of this research, is there any information that you would like to add to what we have already discussed today?

Is there anything that we have discussed that you would like to clarify or change in any way?

Can you think of any other questions that I can ask future participants that would be helpful for opening up discussion of this topic?

We would like to thank you again for your time and participation. Your comments have been very helpful.

- *Remind participants of contact information should they have follow-up questions*
- *Provide each participant with a Military One Source Card*

Section 6: Session Notes/Observations

Interview Context:

Participant(s):

Rapport:

Suggestions/ideas for next interview:

Else:

Appendix B2

FOCUS GROUP PROTOCOL

Section 1: Introductions & Warm Up Questions

Hello. My name is Megan. This is _____. We are researchers with the Army Research Institute at Fort Belvoir, VA. We've traveled to _____ to conduct a series of focus groups with you and other Soldiers as part of an effort to learn more about how members of military units collectively perceive and adapt to challenge. We believe that your role as _____ gives you a unique perspective on unit performance and we would like to have a candid, open discussion about your experiences _____. We have prepared a series of questions to ask you. We ask for only about an hour and a half of your time today.

Before we begin, we want to assure you that your participation is strictly voluntary. You should not feel obligated to participate in this interview. We are also requesting your permission to record this interview. To protect your identify, your personal information will in no way be linked to any record of today's conversation.

The information that you provide today will be used for research purposes. Certain comments may be quoted to illustrate points identified through our analysis and used to prepare reports and other research products. To ensure confidentiality, we will remove all personal identifiers before making use of your comments. Likewise, we ask that each of you respect the confidential nature of this session, by not later identifying individual participants with comments made or heard during this session.

Here is a copy of our consent form, which restates the purpose and nature of our research. Please take a moment to read over the document. I am happy to address any questions that you might have as you read. If you agree to participate in this study and to have your comments recorded, please sign the appropriate lines on the last page of the document.

- *Distribute Privacy Act Statement and Informed Consent*
- *Review signature page to verify nature of consent*

Thank you for volunteering your time today. Before we begin, I would like you to provide some basic information about yourself. When you are finished, simply turn the survey face-down. I will collect them at the end of our interview.

- *Distribute Information Sheet*

Thank you.

- *If all participants agree to be recorded:*
You have (each) indicated that you agree to have our conversation recorded. I am going to turn on the recorder now. If at any point you would like to say something "off the record", just let me know and I will pause the recording. I will continue to take notes at your discretion.
<< *Turn on recorder.* >>

- *If not all participants agree to be recorded:*
I will not be recording our conversation today. I intend to take notes at your discretion. If at any point you would like to say something “off the record”, just let me know and I will stop taking notes while we discuss that topic.

We would like to begin by learning a little bit about your experiences in the Army. Tell me about yourself, your military experience ...

- What is your current position/title?
- How long have you been in the military? In your current position?

Continue on to Section 2 (supplement items with probes in Section 3, as needed).

Section 2: Unit Adaptability

Tell me a little bit about [*this particular type of unit*].

- How is [*this particular type of unit*] structured?
- What types of duties does [*this particular type of unit*] perform?

What are some of the things that [*this particular type of unit*] might struggle with? *Multiple examples of challenges ...*

- How do you know when [*this particular type of unit*] is struggling with [*this specific challenge*]?
- Describe the resources available to [*this particular type of unit*] that helps it to handle [*this specific challenge*].
- How does [*this particular type of unit*] become aware of the resources available to it to handle [*this specific challenge*]?

Describe a time when [*this particular type of unit*] has been able to recover from [*this specific challenge*].

- What do you think might affect [*this particular type of unit*’s] ability to recover from [*this specific challenge*]?
- What do you think might affect how quickly [*this particular type of unit*] recovers from [*this specific challenge*]?
- Describe the short-/long-term effects of this experience for the [*this particular type of unit*].
- Do these consequences apply to all members of [*this particular type of unit*]?

- How do members of this [*particular type of unit*] unwind after [*this specific challenge*]?

Tell me about a time when [*this particular type of unit*] has not been able to recover from [*this specific challenge*].

- What do you think might affect [*this particular type of unit*'s] ability to recover from [*this specific challenge*]?
- What do you think might affect how quickly [*this particular type of unit*] recovers from [*this specific challenge*]?
- Describe the short-/long-term effects of this experience for the [*this particular type of unit*].
- Do these consequences apply to all members of [*this particular type of unit*]?
- How do members of this [*particular type of unit*] unwind after [*this specific challenge*]?

Describe a time when [*this particular type of unit*] faced more than one challenge in a short period of time.

- How did experience with the early challenge affect how [*this particular unit*] responded to later challenges?
- What do you think would have happened if the two challenges were the same or very similar?
- What do you think would have happened if the two challenges were different?

Describe a time when [*this particular type of unit*] had been pushed too far.

- How did you know that the unit had been pushed too far?
- Describe the short-/long-term consequences of a unit being pushed too far.
- Do these consequences apply to all members of the unit?

How might a unit with less experience (newly formed) perform compared to [*this particular unit*] with respect to [*this specific challenge*]?

How might a unit with more experience (longer tenure) perform compared to [*this particular unit*] with respect to [*this specific challenge*]?

Section 3: Probes for Further Detail

Can you describe [*the phenomenon*]?

- How often does [*the phenomenon*] occur?
- Does [*the phenomenon*] affect everyone?
- Is the experience of [*the phenomenon*] the same or different for each unit member?
How?
- What caused [*the phenomenon*]?
- What contextual and intervening conditions influenced [*the phenomenon*]?

What strategies or outcomes resulted from [*the phenomenon*]?

- What were the consequences of these strategies/outcomes?

How did the process unfold?

- What were the major events or benchmarks in the process?
- What were the obstacles to change?

Who were the important participants? (emphasis on role/position)

- How did they participate in the process?
- What were the outcomes?
- Were the outcomes shared equally across participants?

Section 4: Closing Questions/Remarks

This concludes the formal part of the focus group process. Thank you for your participation. We really appreciate your time and your comments.

We recognize that Soldiers are exposed to a host of demands (e.g., high OPTEMPO, submersion in foreign culture), each potentially stressful, and that these challenges may have important implications for physical and psychological well-being. The Army is interested in promoting the well-being of its Soldiers and has supported a number of research, training, and intervention programs aimed at developing a ready and resilient Force. There has been a lot of research focused on the related topics of stress, adaptability, and resilience.

What seems to be missing is a clear direction for understanding these phenomena at the unit level. Specifically, it is unclear how the modern military context affects collective perceptions of challenge, the way units of Soldiers try to adapt to perceived challenges, or the consequences of

these perceived challenges and behavior changes. Our research is focused on better understanding these issues. We hope that this line of research will be used in the development of future unit-level assessments, training, and other interventions aimed at improving the readiness and resilience of the Force.

This focus group is an important first step in our research effort. Now that you know the full scope of this research, is there any information that you would like to add to what we have already discussed today?

Is there anything that we have discussed that you would like to clarify or change in any way?

Can you think of any other questions that I can ask future participants that would be helpful for opening up discussion of this topic?

We would like to thank you again for your time and participation. Your comments have been very helpful.

- *Remind participants of contact information should they have follow-up questions*
- *Provide each participant with a Military One Source Card*

Section 5: Session Notes/Observations

Interview Context:

Participant(s):

Rapport:

Suggestions/ideas for next interview:

Else:

Appendix C

INFORMED CONSENT

Title: Understanding Factors Associated with Unit Adaptability

Purpose of the research: This research is designed to gather information about how members of small military units collectively perceive and adapt to challenges. We are interested in having candid, open discussions with participants about their experiences as members (or observers) of small military units.

What you will be asked to do in this research: We are gathering information on unit adaptability, what it is, and how it might develop over time. We believe that your experiences give you a unique perspective on small unit performance. We have prepared a series of questions to ask you. We are really interested in hearing about your observations and experiences and we encourage you to give us your most honest and complete responses. We ask for only about an hour and a half of your time today.

We are requesting permission to audio-record our conversation. The information that you provide today will be used for research purposes and will not be used to evaluate your performance or the performance of your unit. Certain comments may be quoted to illustrate points identified through our analysis and used to prepare reports and other research products. To ensure your confidentiality, we will remove all personal identifiers before making use of your comments. Your responses will help to inform our understanding of unit adaptability and will be combined with others' responses to create government and academic reports.

Location: This research is being conducted with individuals/units/installations within HRC, FORSCOM and TRADOC in the U.S.

Voluntary participation: Your participation is voluntary. You may choose not to participate at any time and there is no penalty if you do not participate. You may choose not to provide responses to any or all questions/topics of discussion.

An audio recorder will not be used if you do not wish to be recorded – and if one or more participants in a focus group do not wish to be recorded, the entire session will go unrecorded. If you allow us to use the audio recorder, you may at any time request that the recording be paused and we will continue our discussion “off the record”. Audio records will be transcribed and permanently deleted within two weeks of our conversation.

We will be taking notes throughout the session. In the event that you request to share your thoughts “off the record”, we would like to continue to take notes at your discretion. The information that you provide today will be used for research purposes. No one outside of the research team will have access to the data or to any of your individual responses. All data collected will be treated confidentially and compiled, analyzed, and reported at the group level. Certain comments may be quoted to illustrate points identified through our analysis and used to prepare reports and other research products. To ensure your confidentiality, we will remove all personal identifiers before making use of your comments.

We cannot provide "confidentiality" or "non-attribution" to participants regarding any comments disclosing criminal activity/behavior, or statements that pose a threat to self or others. Please DO NOT discuss or comment on classified or operationally sensitive information during the session.

Time required: 90 minutes.

Risks: There are no risks greater than those encountered in everyday activities.

Benefits: None directly to you, but your responses will help us to develop a model of unit adaptation.

Compensation: No compensation is provided for your participation.

Whom to contact if you have questions about this research: You should send your questions to [3](#).
Reference project name: Unit Adaptability.

Whom to contact about your rights in this research: Contact ARI_RES@conus.army.mil. Reference project name: Unit Adaptability.

If responding to any of the questions becomes unpleasant for you, you can withdraw from the discussion at any time. If you feel you'd like to confer with someone confidentially after this discussion, please go to the Military OneSource web site (<https://www.militaryonesource.com>) or call the 1-800-342-9647 number.

If you agree to participate in this research, please check all that apply and sign and date below.

Agreement: I have read the procedures described above.

_____ I voluntarily agree to participate in this research. (check)

Signature: _____ **Date:** _____

_____ I agree to be audiorecorded. (check)

Signature: _____ **Date:** _____

The Defense Center of Excellence (DCoE) Outreach Center

(866) 966-1020

E-mail: dcoeoutreach.org

<http://www.dcoe.health.mil/24-7help.aspx>

Trained, professional health resource consultants with expertise in psychological health and traumatic brain injury. Available 24/7 - information provided by phone, online chat or e-mail. Free!



Suicide Prevention Lifeline for Veterans

(800) 273-TALK (8255) – Veterans Press “1”

<http://www.suicidepreventionlifeline.org/Veterans/Default.aspx>

The Department of Veterans Affairs' (VA) [Veterans Health Administration \(VHA\)](#) has founded a national suicide prevention hotline to ensure veterans in emotional crisis have free, 24/7 access to trained counselors. To operate the Veterans Hotline, the VA partnered with the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Suicide Prevention Lifeline. Veterans can call the Lifeline number, 1-800-273-TALK (8255), and press "1" to be routed to the Veterans Suicide Prevention Hotline.



Wounded Soldier and Family Hotline

(800) 984-8523

E-mail: wfsupport@conus.army.mil

<http://www.armymedicine.army.mil/wsfh/index.html>

The hotline is an avenue to gather information about medical care as well as suggest ways we can improve our medical support systems. Staff members are available 24/7 days.



Real Warriors Campaign

<http://www.realwarriors.net/>

The Real Warriors Campaign is an initiative launched by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) to promote the processes of building resilience, facilitating recovery and supporting reintegration of returning service members, veterans and their families.



U.S. Army Medical Department – Army Behavioral Health

<http://www.behavioralhealth.army.mil/>

When our Soldiers return home, most will experience a brief readjustment period and a successful home transition. Some will need short or long-term counseling to assist in their transition. Explore this Web site especially for Soldiers, Families, and friends. Learn how to adjust, cope, get ready to deploy, transition to return home, and other information and sources.



RETAIN THIS PAGE FOR YOUR RECORDS

Appendix D

PRIVACY ACT STATEMENT

Project Title: Understanding Factors Associated with Unit Adaptability

AUTHORITY: The Department of the Army may collect the information requested in this session under the authority of 10 United States Code, Section 2358, “Research and Development Projects.” In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose, use, and confidentiality of this session.

PURPOSE: This research project is designed to gather information regarding Soldiers’ perceptions regarding adaptability within military units and help identify important factors related to adaptation at the unit level. We are gathering information on unit adaptability, what it is, and how it might develop over time.

ROUTINE USES: The information you provide will be used to inform our understanding of collective adaptation. The data collected will be used for research purposes only and will not be used to evaluate your performance or the performance of your unit. No one outside of the research team will have access to the data or to any of your individual responses. The information you provide will help to inform our understanding of unit adaptability and findings from this research will be used in briefings and reports to senior Army leaders, as well as in research publications available to the public.

DISCLOSURE: Participating in this session is voluntary and you may choose at any time not to participate. There is no penalty for choosing not to participate—you may remain quiet during the session. However, we are really interested in hearing about your observations and experiences and encourage you to give us your most honest and complete responses.

CONFIDENTIALITY: Your participation is voluntary. You may choose not to participate at any time and there is no penalty if you do not participate. You may choose not to provide responses to any or all questions/topics of discussion. An audio recorder will not be used if you do not wish to be recorded – and if one or more participants in a focus group do not wish to be recorded, the entire session will go unrecorded. If you allow us to use the audio recorder, you may at any time request that the recording be paused and we will continue our discussion “off the record”. Audio records will be transcribed and permanently deleted within two weeks of our conversation. We will be taking notes throughout the session. In the event that you request to share your thoughts “off the record”, we would like to continue to take notes at your discretion. All data collected will be treated confidentially and compiled, analyzed and reported at the group level. Likewise, we ask that each of you respect the confidential nature of this session, by not later identifying individual participants with comments made or heard during this session. We cannot provide "confidentiality" or "non-attribution," to participants regarding any comments disclosing criminal activity/behavior, or statements that pose a threat to self or others. DO NOT discuss or comment on classified or operationally sensitive information during the session. We are planning to take notes during the session, however, any information you provide will be combined with the information we receive from the other individuals. None of your responses will be linked to you specifically.

CONTACT: For further information about this project or your rights as a participant, send e-mail to: ARI_RES@conus.army.mil with subject line titled “Unit Adaptability.”

RETAIN FOR YOUR RECORDS

Appendix E:

UNIT ADAPTABILITY – PARTICIPANT INFORMATION SHEET

1. Are you male or female? (mark one) Male Female
2. How old are you: _____
3. What is the highest level of education you have completed?
- GED or High School Diploma
 - Some College but no degree completed
 - Associate Degree (e.g., AA, AS)
 - Bachelor’s Degree (e.g. BA, BS)
 - Some Graduate Education but no degree completed
 - Masters/Doctoral/Professional Degree (e.g., MA, MS, Ph.D, MD, DDS, JD)
4. What is your current military rank/grade?
- | | | | |
|----------------------------------|----------------------------------|------------------------------|-------------------------------|
| <u>Enlisted</u> | | <u>Officer</u> | |
| <input type="checkbox"/> PV1/PV2 | <input type="checkbox"/> SSG | <input type="checkbox"/> 2LT | <input type="checkbox"/> MAJ |
| <input type="checkbox"/> PFC | <input type="checkbox"/> SFC | <input type="checkbox"/> 1LT | <input type="checkbox"/> LTC |
| <input type="checkbox"/> CPL/SPC | <input type="checkbox"/> MSG/1SG | <input type="checkbox"/> CPT | <input type="checkbox"/> COL+ |
| <input type="checkbox"/> SGT | <input type="checkbox"/> SGM/CSM | | |
- Warrant Officer**
- CW1
 - CW2
 - CW3+
5. How many years/months of military service do you have to date: _____years_____months
6. In the past 5 years, what is the total amount of time you been deployed (e.g., OEF/OIF) and/or been on OCONUS assignments (e.g., EUSA, NATO, UN)?
- I have not been deployed and/or on OCONUS during the past five years.
 - Less than 1 year
 - 1 to 1 year 11 months
 - 2 to 2 years 11 months
 - 3 to 3 years 11 months
 - 4 or more years