

ABSTRACT

Title of Document: THE ROLE OF PROACTIVITY IN
OVERCOMING THREAT: A MODEL OF
TEAM LEARNING

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Team learning is critical for teams to be successful in dynamic environments. However, teams often experience threats that can lead to rigid approaches to their work. Threats can cause teams to rely on well-known responses to their tasks and prevent them from exploring new ideas and opportunities. Consequently, threats can be associated with diminished learning in teams. I focus on this issue by examining the following question: What enables teams to reduce the negative effects of threat on team learning? I argue that when confronting threat, teams composed of members with higher proactive personality are likely to more positively frame the threat and engage in behaviors that enable them to explore alternative approaches to their work. Therefore, I propose that proactivity can help teams buffer against the negative effects of threat on team learning processes, which include behaviors such as seeking feedback, engaging in experimentation, and discussing errors. I test my hypotheses in an experimental study in which 94 5-person teams work on a command and control

simulation. I manipulate a) team composition with respect to proactivity and b) threat, which was conceptualized as a potential loss to personal reputation and public discrediting for poor performance. Results indicate that irrespective of their proactivity levels, teams demonstrated high levels of team learning processes in the absence of threat. By contrast, in the presence of threat, only teams in the high proactivity condition maintained high levels of learning processes whereas teams in the low proactivity condition displayed significantly diminished learning processes and (subsequent) performance.

THE ROLE OF PROACTIVITY IN OVERCOMING THREAT: A MODEL OF
TEAM LEARNING

By

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Dedication

Dedicated to Neil J. Flinders

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Chapter 1: Introduction

Teams are vital to modern organizations because they can integrate members' diverse capabilities and expertise to accomplish tasks too complex for individuals and are more flexible and dynamic than larger organizational units (Borman & Motowidlo, 1997; Crawford & LePine, 2012; Kozlowski & Klein, 2000; Morgeson et al., 2005; Morgeson & Hofmann, 1999). Teams frequently face *threat* or “an environmental event that has impending negative or harmful consequences” (Staw, Sandelands, & Dutton, 1981: 502; Janis, 1982; Lazarus & Folkman, 1984). Pervasive in high-stakes or dynamic environments but also frequent in more mundane work conditions (Driskell & Salas, 1991; Ellis, 2006; Gladstein & Reilly, 1985), threat entails perceptions that resources valued by team members may be in jeopardy or lost. For example, time pressure (which perceptually reduces the valuable resource of time available to complete work), increased competition (which can reduce valuable resources such as market share, resource supplies, or direct financial rewards), or the potential for a reduction in reputation (which is often valued as a core social resource) might be perceived as threats.

Prior theorizing has popularized the threat-rigidity hypothesis, which posits that threats are problematic because they lead to inflexible team functioning. The presence of threat induces stress which can trigger teams' most typical, routine, or exploitative approaches as they strive to do what they know best in order to avoid unnecessary risks and prevent loss (Staw et al., 1981; cf. Ellis, 2006; Paterson & Neufeld, 1987). This rigidity can be maladaptive when it is in teams' best interest to explore, improve, or develop new approaches to their work. Thus, rigidity can be

particularly detrimental to *team learning processes*. Team learning processes are a critical function for most teams, and refer to behaviors that members engage in to “acquire, share, refine, or combine task-relevant knowledge” (Van der Vegt & Bunderson, 2005: 534; cf. Edmondson, 1999). Team learning processes occur when members work together to understand how they can improve and better achieve their goals. When teams engage in team learning processes, they are more likely to seek feedback, engage in experimentation, discuss errors, consider alternative approaches to their typical procedures, reflect on their past results, and codify joint knowledge (Argote, Gruenfeld, & Naquin, 2001; Edmondson, 1999; Gibson & Vermeulen, 2004; Van der Vegt & Bunderson, 2005). Team learning processes are valuable because they can improve team effectiveness and serve as a key resource to organizations as those improvements diffuse to other units (Argote, 2004; Bell, Kozlowski, & Blawath, 2012; Edmondson, 2002; Edmondson, Dillon, & Roloff, 2007; Kane, Argote, Levine, 2005; March, 1991; Wilson, Goodman, & Cronin, 2007).

By triggering rigid responses, threat is likely to derail such team learning processes and limit the extent to which teams consider or develop alternatives to how they engage in their tasks (Staw et al., 1981). Even though prior work has not directly examined the relationship between threat and team learning processes, there is evidence that threat inhibits processes related to learning by inducing rigidity. For instance, threat decreases information processing (Gladstein & Reilly, 1985; Staw et al., 1981), decreases the quality of team cognitive structures (Ellis, 2006), inflates consensus in decision making (Turner, Pratkanis, Probasco, & Leve, 1992), inhibits members seeking out and sharing information, results in overly complex

communication patterns (Stachowski, Kaplan, & Waller, 2009), and reduces the quality of strategies (Tripsas & Gavetti, 2000). By leading teams to become overly reliant on standard approaches to work and insufficiently exploring and developing novel responses that might otherwise help them prevent the negative outcomes attributed to threat, threat is also likely to indirectly decrease teams' ability to achieve high levels of performance.

Given the damage that threat can do to team learning processes and performance, a critical issue is when and how teams may overcome this. Previous research on threat has painted a theoretical picture in which teams passively react to their environments. That is, when faced with threat, teams tend to inevitably experience decrements to their functioning due to induced rigidity. From that research, it is difficult to conceptualize how teams can avoid rigid responses to threat, short of preventing threat from occurring (or at least being perceived) in the first place. This theoretical limitation also has practical implications because the current literature provides managers with virtually no guidance in how to effectively design or manage teams that potentially face threat. That is, it is unclear what might be done to ensure that team learning processes occur even when teams confront threats.

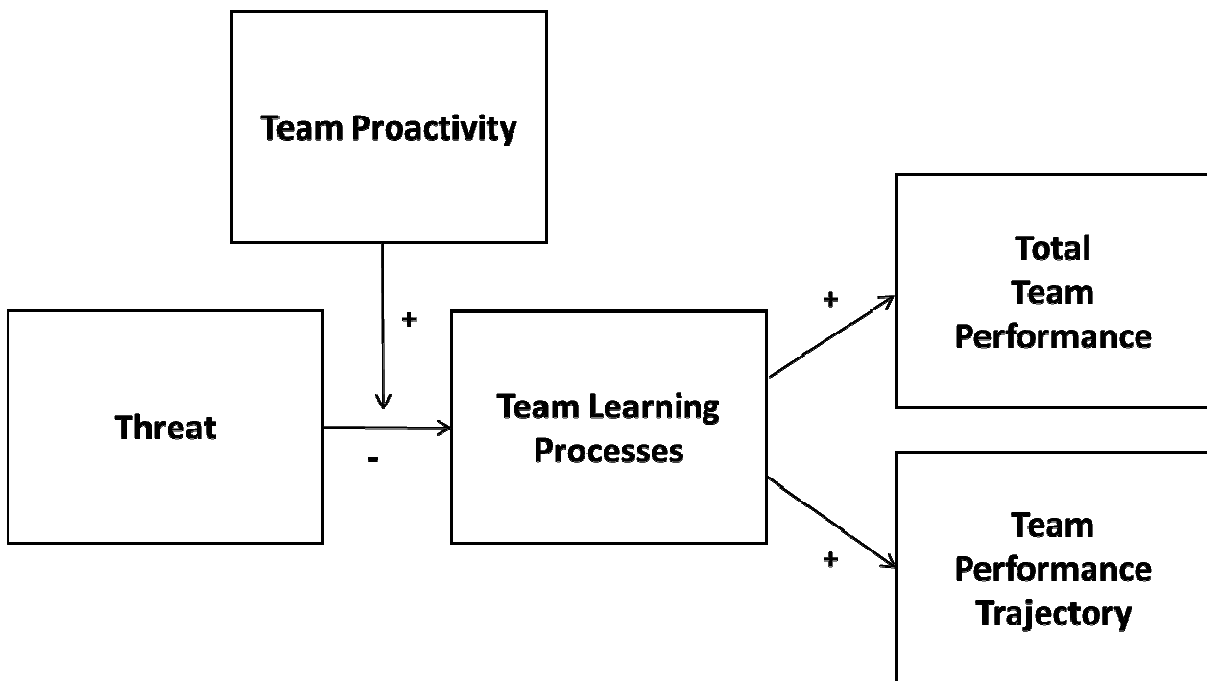
The purpose of this dissertation is to delineate a key factor that might reduce the negative effects of threat on team learning processes and subsequent performance. Specifically, I propose that teams composed of members who are more proactive (i.e., who possess "the relatively stable tendency to effect environmental change"; Bateman & Crant, 1993: 103) can buffer themselves against the negative effects of threat, permitting team learning processes to occur even when threat is present. Prior

work has demonstrated the importance of team composition on team functioning and performance (Bell, 2007). Team proactivity can be an especially important compositional variable to examine in the context of threat because it emphasizes an active approach to learning. I argue that teams with proactive members are less likely to be passive when confronted with threat. Because they are likely to frame threats in a more positive manner and, consequently, not only experience lower levels of stress but feel more confident about their prospects of overcoming threats, these teams will continue working toward improving their circumstances by exchanging suggestions on work process (i.e., engage in voice) and experimenting with or changing how work is executed (i.e., take charge), which enhances the information sharing that is central to team learning processes. Although such actions may not be able to enhance team learning processes in the face of threat, I argue that they can prevent losses to team learning processes that would otherwise occur due to threat-induced rigidity. In other words, I explore how proactivity can prevent teams from experiencing failure (i.e., poor team learning processes and reduced performance) when confronting threats by helping them to persist in team learning processes that ultimately benefit performance.

I test my hypotheses using an experimental design that enables me to manipulate both the presence of threat and team composition in controlled conditions, allowing me to make stronger conclusions about causality than would be feasible using a correlational design. Within a complex computerized experimental task, I manipulate threat by inducing the prospect of reputational loss and public discrediting for poor performance (cf., Ellis, 2006). I manipulate team proactivity by assigning

individuals with different levels of trait proactivity to teams in different conditions. I capture team learning processes during task accomplishment using a survey measure and rely on two different objective team performance measures as my ultimate dependent variables. Figure 1 illustrates my theoretical model.

Figure 1. Theoretical Model



Intended Contributions

This dissertation makes two important contributions. First, I strengthen our understanding of the relationships that threat has with team learning processes and performance. To do so, I develop theory that helps explain why threat relates negatively to team learning processes and performance. This is an important extension of current theorizing on threat (i.e., on the threat-rigidity hypothesis; Staw et al., 1981), as it expands on why threat might be problematic for teams. Further, I explain why teams may not necessarily passively respond to threat, as much of the previous literature related to threat rigidity has assumed. By examining the moderating effect of proactivity on team learning processes, this work provides a theoretical and practical solution to what might be done to overcome (i.e., minimize the effects of) threat. I demonstrate that teams composed of more proactive members continue to engage in learning (i.e., do not experience decreases in learning relative to those teams with lower levels of proactivity) even when faced with threat and, in the process, develop theory on how teams can intentionally address challenges they encounter. Thus, I explain how threat-induced rigidity can be overcome, introducing a critical moderator to the current theoretical conceptualization of the threat-rigidity hypothesis that posits that rigid responses to threat that are largely unavoidable.

Second, this work contributes to the proactivity literature. Specifically, I explore outcomes of proactivity (i.e., team learning processes and team performance). The bulk of both theoretical and empirical work on proactivity has been at the individual level, with little work addressing how teams might proactively approach

their work or what the outcomes of doing so may be (Grant & Ashford, 2008; Griffin, Neal, & Parker, 2007; Parker, Bindl, & Strauss, 2010). Most of the initial work on outcomes of team-level proactivity has examined facilitative conditions required for team proactivity to impact performance (Frazier & Bowler, 2013; Grant & Patil, 2012; MacKenzie, Podsakoff, & Podsakoff, 2011; McClean, Burris, & Detert, 2012). By explaining why proactive teams may be able to directly overcome challenges in their environments (i.e., threat), I establish initial arguments for why proactive teams may be able to directly minimize challenges rather than wait for others (e.g., managers) to do so for them.

Chapter 2: Theory and Hypotheses

Any environmental event that is perceived as entailing an impending probable loss comprises a threat. When threatened, teams anticipate losing either current possessions or expected future outcomes. Threats vary widely in source and type. For example, threats might arise from time pressure, the prospect of reputational loss, new competition, a loss of raw materials necessary for production, changes or losses to team membership, equipment failure, environmental catastrophes (e.g., the Mann Gulch wildfire that endangered firefighting crews), preventable errors, or accidents (e.g., the mishap aboard the Apollo 13 spacecraft; Ellis, 2006; Morgeson, 2005; Summers et al., 2012; Tripsas & Gavetti, 2000; Weick, 1993). Different types of teams might face different types of threat more regularly than others. For example, action teams might be more likely to face environmental catastrophes, production teams might be more likely to face losses of raw materials, and top management teams might be more likely to face losses in membership (Devine, 2002; Ellis et al., 2005).

Regardless of source, the perceived negative valence associated with threat tends to result in members' stress. Psychological stress refers to negative feelings of strain or pressure, reflecting the sense that perceived demands exceed one's capacity to adequately respond (Gray, 1999; Salas, Driskell, & Hughes, 1996). Threat-induced stress results from a two-part appraisal system that accounts for how much loss is on the line and how likely a team perceives they are to avoid it. (Lazarus, 1966; Lazarus & Folkman, 1984; Paterson & Neufeld, 1987). First, teams assess the cues that

indicate the presence of threat to determine the threat's magnitude. The perceived magnitude of loss associated with a threat is proportional to the extent to which the loss is experientially aversive (i.e., is painful to undergo), the number and importance of outcomes anticipated to be affected by the loss, the permanency of the loss, and how definite the loss is to occur (Paterson & Neufeld, 1987).

Second, teams assess their available resources for responding to the threat. Threats are felt more strongly when there are fewer perceived resources— material, social, cognitive, temporal, or otherwise— available to respond (cf., Gladstein & Reilly, 1985; Paterson & Neufeld, 1987; Staw et al., 1981). Although prior explanations have largely assumed that assessments of available resources are objective (e.g., Paterson & Neufeld, 1987; Tesluk & Mathieu, 1997), the anxiety that threat elicits may lead teams to underestimate the resources they actually do have available—thus amplifying feelings of having little control over experiencing loss (cf. Seo, Barrett, & Bartunek, 2004). In sum, team members experience stress when they perceive a threat of sufficient magnitude because such a threat also pushes them to believe that they do not have slack resources to easily absorb the anticipated loss (Voss et al., 2008).

Perceptions of threat are shared across members, with specific anticipated losses to the team occurring either to individual team members (e.g., individual pay docks for all members; personal feelings of embarrassment or shame for failure) or the team as a whole (e.g., all team resources cut off). As team members collectively experience stress based on the perception of threat and as they make their own independent assessments of both individual- and team-level resources available to

cope with the threat, this impacts how members engage in their collective work.

Below, I explain how threat impacts members' own work as well as their contributions to joint actions that affect team learning processes and subsequent team performance.

The Effects of Threat on Team Learning Processes and Performance

Team learning has been examined using multiple construct definitions and several distinct research approaches (Edmondson et al., 2007; Wilson et al., 2007). In line with prior theorizing, I take a process-oriented approach in which team learning is conceptualized as an interdependent set of members' behaviors that are enacted cyclically and oriented towards obtaining, distributing, and re-combining information (Van der Vegt & Bunderson, 2005). These behaviors are focused on improving a team's understanding of their strengths and weaknesses so that enhancements to team capabilities—i.e., a team's established way of doing things (Pentland & Rueter, 1994)— can be implemented (Edmondson et al., 2007). Given their focus on behaviors oriented towards gaining and distributing knowledge, team learning processes are distinct from other conceptualizations of learning that more closely capture outcomes of learning processes, such as changes in actual task behaviors, improved performance over time, or enhanced mastery of task skills (Burke et al., 2006; Edmondson et al., 2007; Wilson et al., 2007).

As teams engage in team learning processes, they develop ideas on how to either improve their current capabilities or develop new ones (Argyris, 1982; Crossan, Lane, & White, 1999; Cyert & March, 1963; Edmondson, 2002; Gavetti & Levinthal, 2000; Lant & Mezias, 1992; Levitt & March, 1988; March, 1991; Miner & Mezias,

1996). To do so, teams build from members' novel ideas that are suggested with the aim to improve how tasks are typically performed (often referred to as voice) and find ways to incorporate these ideas into enhanced functioning (Detert et al., 2013; MacKenzie, Podsakoff, & Podsakoff, 2011; cf. Wilson et al., 2007). During learning, teams also leverage individuals' initiative in enhancing their own work (often referred to as taking charge) by discussing how such enhancements can be utilized by others (Edmondson, 1999; cf., Darr et al., 1995). As Edmondson (1999: 353) noted, "for a team to discover gaps in its plans and make changes accordingly, team members must test assumptions and discuss differences of opinion openly." Through this process, teams synthesize knowledge residing within individual members to develop a common understanding about their future courses of action (Gibson & Vermeulen, 2004). Developing this common understanding is critical for teams to then codify joint information into concrete plans that can be further reflected on or modified (Gibson & Vermeulen, 2004; cf. Cronin & Weingart, 2007; Ellis, 2006; Firth et al., in press). Team learning processes thus occur not when members independently learn, but when members work to co-develop improved courses of action.

Threat is expected to inhibit team learning processes and performance most proximally via inducing psychological stress. As outlined above, when teams perceive that a threat is more likely to result in loss and also assess that there are fewer resources available to prevent such loss, members are most likely to experience stress. Prior theorizing has argued that this stress leads to an overemphasis on dominant or standard approaches to work that is rigid in nature (McKinley et al., 2013; Staw et al., 1981; cf. Audia & Greve, 2006; Paterson & Neufeld, 1987; Voss et

al., 2008). Rigidity refers to the tendency for teams to behave in a less variant or flexible manner in their responses to task demands, and occurs in numerous forms. For instance, rigidity occurs when units persist in previously successful resource investment patterns in the face of threatening changes, or when units persist in the “processes that use those resource investments” (Gilbert, 2005: 741). Ultimately, rigidity entails restricting the extent to which teams engage in variance-seeking behaviors (e.g., exploring new approaches; McGrath, 2001; McKinley et al., 2013), whether that means holding fast to well-worn routines (Gersick & Hackman, 1990), or anchoring quickly around a single strategic approach (Woolley, 2009).

Threat-induced rigidity is most likely to arise when members perceive that they have little control over their outcomes (Staw et al., 2001), leading them to be more risk-averse than they may be otherwise (c.f., Chattopadhyay et al., 2001). As a result of sensing that negative outcomes are inevitable, members’ efforts are often directed towards domains where there is perceived control, such as individual-level actions (e.g., Driskell et al., 1999; Gladstein & Reilly, 1985) or off-task goals. As individuals become more self-focused and less team-oriented, the extent to which teams share, encode, store, and retrieve information in exchanges between members decreases (Ellis, 2006; Staw et al., 1981). The anticipatory nature of threat (i.e., the perceived losses have not yet occurred) means that even if teams feel they have little control, actions can be taken to minimize potential negative outcomes. However, as they attempt to do so, teams tend to eschew actions with unknown consequences that may exacerbate the threat. Rather than developing new ideas based on information obtained through such exchanges, they tend to focus more on efficiency, strive to

leverage known routines to help them avoid losses, and censor dissenting views (Gladstein & Reilly, 1985; Staw et al., 1981). As a result, the experimentation and exchange of ideas that is so central to team learning processes are reduced.

Hypothesis 1: Threat negatively relates to team learning processes.

As mentioned above, team learning processes are distinct from learning outcomes such as actual changes to their behavioral repertoire or resultant increases in performance outcomes (Argote, 1991; Wilson et al., 2007). Distinguishing between the process of team learning and outcomes of learning is important, as teams may engage in learning without any corresponding performance gains. For instance, it is possible for teams to devote effort to learning new information that is not directly relevant to current task requirements. Alternatively, teams may experience performance gains that have nothing to do with any learning that may or may not have occurred (e.g., as a result of environmental fluctuations; Bell et al., 2012).

However, the bulk of evidence indicates that team learning processes do relate positively to performance (e.g., Van der Vegt & Bunderson, 2005; Edmondson, 1999; Edmondson et al., 2007). As teams work to generate improved approaches to their work, some of these ideas become implemented and enhances functioning that improves performance outcomes. For example, medical teams that engage in team learning processes develop improved ways of treating patients that enhance customer satisfaction, and teams in the pizza-making industry that develop and share new ideas for how to process their resources reduce production costs (Darr, Argote, & Epple, 1995; Edmondson, 1999). Thus, on average teams that engage in team learning processes demonstrate higher overall levels of performance.

In addition to enhancing average levels of performance, team learning processes can enhance the rate of change in performance over time. Prior work has often conceptualized team learning as team performance improvement (Argote & Epple, 1990; Edmondson et al., 2007; Pisano et al., 2001; Reagans et al., 2005). As noted above, this conceptualization assumes away other potential reasons for why performance rates may change over time. However, there are strong reasons to expect that engaging in team learning processes should enhance team performance improvement. Teams that are learning at higher levels should be more likely to improve their performance more quickly (cf., Argote, 2004; Tangirala et al., in progress). Early enhancements resulting from team learning processes can be compounded over time as teams further develop them, leading to performance improvements over time. Teams engaging in team learning processes are also more likely to minimize negative effects of unexpected interruptions to taskwork (cf. Bechky & Okhuysen, 2011; Burke et al., 2010), leading to more positive performance trajectories.

There are also important reasons to examine team performance improvement as a distinct outcome from average levels of performance. Performance improvement captures the implementation of ideas generated by team learning processes over time rather than just the average effectiveness, which may mask whether team learning processes helps teams continually improve or whether team learning processes are useful early on but then inhibits effectiveness later on. Additionally, the perception of change in performance may provide important information in itself to the team about

the quality of their learning processes and likelihood of future success (cf. Chen et al., 2011; Firth et al., 2014; Hausknecht, Sturman, & Roberson, 2011).

Given the relationship between team learning processes and team performance, threat's negative impact on team learning processes are also likely to result in lower levels of performance. By preventing teams from sharing information about knowledge they have that might enhance overall functioning and generally preventing new ideas from being explored, threat prevents novel ideas from being implemented that might otherwise enhance average performance or foster improvements over time.

Hypothesis 2: Team learning processes mediate the negative effect of threat on a) overall team performance and b) team performance improvements.

Reducing the Negative Effects of Threat on Team Learning Processes and Performance

Although the literature has increasingly examined what might facilitate team learning processes, there has been little theory guiding research into what factors might overcome the negative effects of threat. Generally, prior research has demonstrated that the extent to which teams are composed of individuals with particular traits can strongly affect members' interactions, impacting subsequent processes and outcomes (e.g., Bell, 2007; LePine, 2005; Morgeson & Hofmann, 1999). Given that threat impacts how members respond to stress and process and share information, certain characteristics of members that mitigate such responses could be an important resource for teams to draw upon when encountering threat.

Building from this approach, I argue that teams with higher levels of proactive personality are less likely to be constrained by threat, and thus less likely to experience losses in team learning processes relative to teams with low proactivity. I explain that proactive teams are more likely to demonstrate certain positive states and behaviors that buffer against the mitigating effect of threat on team learning processes, whereas teams with low proactivity are less likely to exhibit these states and behaviors and thus more likely to succumb to the negative effects of threat on team learning processes.

Team Proactivity

The literature on proactivity originated as a counterpoint to the prevalent doctrine that employees tend to respond passively to environmental contingencies and rewards (Grant & Ashford, 2008). Proactive approaches to work are characterized by anticipatory, future-focused actions directed at impacting one's self or one's work (Grant & Ashford, 2008). Proactive personality, defined as "the relatively stable tendency to effect environmental change" (Bateman & Crant, 1993: 103), is an important determination of proactive approaches to work. Proactive individuals tend to not be constrained by environmental conditions, instead effecting change as willful agents who identify opportunities, take initiative, and exert persistent effort until changes are accomplished (Bateman & Crant, 1993; Crant, 2000; Griffin et al., 2007). Proactive individuals actively select situations that they can impact (Schneider, 1983), reappraise and positively frame their situations (Ashford & Black, 1996; Lazarus, 1984), seek out information (Ashford & Black, 1996; Frese & Fay, 2001), and strive to impact others (Bateman & Crant, 1993; Buss, 1987). The change-focused nature of

proactive personality means that these individuals are likely to persist in such efforts over time, attend carefully to their own internal resources and characteristics of the environment, and be willing to engage in behaviors that are focused on improvement. As a result, proactive personality is associated with other related yet distinct traits such as learning goal orientation, personal initiative, need for achievement, conscientiousness, extraversion, and intrinsic motivation (e.g., Batemen & Crant, 1993).

As explained above, I generally expect that threat impairs team learning processes. However, I expect that teams with higher average levels of proactive personality are less likely to demonstrate decrements in team learning processes when under threat. Although not yet directly linked to team learning processes, proactive personality positively relates to similar outcomes such as organizational innovation (Parker, 1998), team performance (Kirkman & Rosen, 1999), and entrepreneurship (Becherer & Maurer, 1999; Crant, 1996). Because the interdependent, collective nature of team learning processes benefit from the inputs of all members, I focus specifically on aggregate levels of team proactivity (i.e., averaging across all members). I focus on team composition rather than specific proactive behaviors because a trait-based approach (a) is more distal to my focal outcomes (i.e., it is easier to distinguish from specific behaviors that are integral to team learning processes such as voice), and (b) captures a broader range of factors that is expected to impact the threat-learning relationship (e.g., proactive personality leads to both proactive behaviors and internal cognitive states, which I argue below are both important).

The negative relationship between threat and team learning processes should be particularly strong for teams composed of less proactive members. Without members who are actively focused on creating change in how their teams engage in their work and respond to challenges, low-proactive teams are more likely to feel that their actions will not be able to prevent the threatened losses and that negative outcomes are inevitable. This is likely to increase stress, leading to rigid approaches to team functioning and reduced learning. Teams who are less proactive feel that they have less control and are less likely to act to change their work or their environment in an effort to prevent loss. Behaviors such as voice and taking charge which are ordinarily important to team learning processes are likely to decrease in the presence of threat, as members become more focused on their own work requirements (as opposed to integrating with other members or enhancing joint processes) and as they focus more on doing those tasks in routine ways. As a result, these teams are more likely to be averse to exploring new ways of functioning and thus demonstrate lower levels of team learning processes in the presence of threat.

Teams composed of more proactive members, on the other hand, are less likely to experience decrements in team learning processes in the presence of threat. Such teams are less likely to perceive stress and more likely to feel confident, both of which mitigate rigidity and decreases in team learning processes associated with threat. In terms of the two-step appraisal system that determines stress levels resulting from threat, more proactive teams may perceive a lesser magnitude of threat and also feel they have greater resources with which to address the threat. After cues indicating the presence of threat are perceived and processed by members, teams with

higher levels of proactive personality are likely to positively reframe their circumstances. Rather than viewing negative outcomes as inevitable, these teams are likely to transform threats into challenges and “actively seek novelty to problematize their world view in order to alter their assumptions” (Harrison, Sluss, & Ashforth, 2011: 213; Lazarus, 1991), which can be motivating and enhance team cognition (Pearsall, Ellis, & Stein, 2009). They are also likely to feel that they have greater control over preventing potential outcomes of the threat, as they recognize that by persisting in developing ways to improve their work, they can shape their environment and thus have control over their outcomes (Bateman & Crant, 1993; Frese & Fay, 2001). Thus, they are more likely to recognize that they may have resources within the team that, if aligned and integrated, might permit threat to be overcome. This in itself reduces the extent to which threat is perceived as being present (and thus decreases associated stress and rigidity; Staw et al., 1981). This should enhance team efficacy, which enables teams to continue to pursue learning-based goals (e.g., Chen et al., 2005; 2009).

As a result of lower perceived stress and higher confidence in avoiding loss, proactive teams are more likely to persist in considering ways in which they might change their circumstances such that the impending loss is either removed or mitigated, creating a more favorable situation. Specifically, individuals in teams with more proactive members should continue to engage in two key behaviors that are important to learning in any situation but particularly likely to prevent losses to team learning processes in the presence of threat. First is voice, which refers to “discretionary verbal communication of ideas, suggestions, or opinions with the intent

to improve organizational or unit functioning” (Morrison et al., 2010: 183; Greenberg & Edwards, 2009; Van Dyne & LePine, 1998). Second is taking charge, which “entails voluntary and constructive efforts... to effect organizationally functional change with respect to how work is executed within the contexts of their jobs, work units, and organizations” (Morrison & Phelps, 1999: 403). Whereas voice is typically directed at enhancing team-level processes, taking charge refers primarily to changes that individual members make in how they engage in their own work.

In sum, teams with low proactivity are likely to feel that they have little control over the potential losses associated with threat, and are thus likely to experience the full negative effects of threat on team learning processes. However, proactive teams are expected to feel that they have greater control over impacting their work and their environment, and are thus more likely to continue to engage in typical processes inherent to team learning processes even when threat is present. As a result, team proactivity is expected to buffer against losses to team learning processes in the presence of threat. What this means is that, compared with high proactive teams, less proactive teams should engage in significantly fewer team learning processes in the presence of threat.

Hypothesis 3: Team proactivity positively moderates the relationship between threat and team learning processes, such that team learning processes are less negatively affected by threat when team proactivity is high.

Because proactive teams are likely to engage in team learning processes even when threat is present, they are more likely to experiment in ways to enhance their

functioning. Thus, proactive teams are expected to implement novel approaches to their work that enhances performance. As a result, the mediated effect of threat on team performance via team learning processes are expected to be less negative for proactive teams. On the other hand, as I do not expect that low proactive teams are likely to sustain team learning processes in the presence of threat, they are also expected to demonstrate lower levels of performance as a result.

Hypothesis 4a: Team proactivity moderates the mediated relationship between threat, team learning processes, and overall team performance, such that overall team performance is less negatively affected by threat when team proactivity is high.

Hypothesis 4b: Team proactivity moderates the mediated relationship between threat, team learning processes, and team performance improvement, such that changes in performance over time is less negatively affected by threat when team proactivity is high.

Chapter 3: Research Methods

Sample

The final sample consisted of 470 undergraduate students from a mid-Atlantic university, assigned to 94 teams. Participants received research participation credit in their core coursework for participating in the study. To provide additional incentive to engage in the task, it was announced that the top performing team would be awarded \$250.

A total of 126 teams initially participated in the study (an additional five 5-member teams, plus 15 4-member teams, and 12 3-member teams), for a total of 591 participants. Although the experimental task (described below) required 5-member teams for analyses to be valid, some 4- and 3-member teams were run due to difficulties involved in assigning participants to experimental conditions within the constraints of the broader subject pool requirements. All 3- and 4-member teams were excluded from the study's sample. Five 5-member teams were also excluded due to large amounts of missing data (primarily caused by computer failures that prevented recording simulation outcomes).

Task and Procedures

Prior to coming to the laboratory for the experimental task, individuals completed an online survey to assess stable personality traits, including the focal variable of proactivity. This survey was taken at least one week prior to participating in the experimental task. Upon arrival in the lab, teams engaged in a computerized simulation called the Leadership Development Simulation (LDS; see Appendix A for

a screenshot). This task was conceived and developed specifically to train and evaluate officers in the U.S. Air Force (for additional details and discussion see Lorinkova, Pearsall, & Sims, 2013). The simulation task involves directing a set of Remotely Piloted Aircraft (RPA) to search for, identify, and engage enemy targets over a series of 10 trials on a 16x16 game grid. The task requires both coordination and memory-based reasoning under time pressure in order to find and engage targets. The overarching goal is to maximize points, which are awarded for destroying enemy targets and deducted for losing RPAs or bases to enemy fire, and require all members to work together. The task environment is dynamic in that the targets are invisible until detected by players searching behaviors, and they move each trial with some targets moving gradually to attack the team's base.

Before participating in the simulation, teams were shown a 15-minute slide presentation on the basic rules and functionality of the simulation (i.e., target info, rules, roles of team members, and other basic task knowledge). Afterwards, teams were led through a 25-minute hands-on training session, where members used the simulation to perform practice tasks under the guidance of a research assistant. Participants were given the opportunity to ask questions about the simulation, and provided brief feedback on their performance after the practice task. Following training, teams were given a 2-minute period to discuss their strategy, after which the simulation task was started.

All team members were seated around a table with their own computer workstations, which they used to control specific assets. Each team member was randomly assigned a distinct role. Two members oversaw operational assets, which

were used to target and destroy enemy targets. Each of these members controlled different types of assets whose movements were to be coordinated in order to successfully accomplish the task. All operational assets gained information about the grid square they were positioned in with 100% accuracy. Two different members oversaw intelligence assets, which were used to gain information regarding the location of enemy targets. Finally, the fifth member updated information onto a communal screen which was used to track the location of all enemy targets, called the Common Operational Picture (COP). The COP is a map of the 16x16 game grid on which target indicators could be placed, and was displayed on one wall of the room in view of all team members. When members believed that they had located a target, they notified this coordinating team member, who placed an indicator on the COP for that target.

The simulation involved multiple decision-making trials, each of which lasted 8 minutes. The total task consisted of 10 trials, resulting in an 80-minute task (combined with training and surveys, the entire study lasted approximately 2 hours 40 minutes). In each trial, members first deployed their resources by assigning them to locations on the simulation grid. Next, they saw the results of their actions and were provided time to update the COP and discuss their plans for the next trial.

Manipulations

Team Proactivity:

I manipulated proactivity by composing teams to be high versus low in trait proactivity based on average individual scores within the team. To do this, I used a pre-survey to assess the proactive personality of participants at least one week before

they attended the lab (participants were required to take the pre-survey prior to obtaining permission to sign up for the lab-portion, with a one-week delay after pre-survey completion for this permission to be granted). Relying on normative data obtained from a prior equivalent sample, participants were assigned to a condition based on whether their proactivity score was above or below the normed mean ($m = 3.80$; $SD = .53$). To assign individuals to a condition, individuals above or below the mean of proactivity were provided a respective code to sign up for condition-specific lab sessions through a centralized online lab management system. Individuals exactly at the mean were randomly assigned a code to one of the two conditions. This ensured that as students were randomly assigned to teams, teams were composed exclusively of members that were all either above or below the mean of proactivity, resulting in average team levels of proactivity that were also above the mean (high proactivity condition) or below the mean (low proactivity condition).

Threat:

My conceptualization of threat is as an environmental event that triggers perceptions of loss. Thus, I manipulated threat by introducing an event prior to the beginning of the task in which teams learned that it was possible for them to experience the potential loss of reputation and credibility. This type of loss is theoretically likely to induce the same type of stress and rigidity as other types of threat (see Ellis, 2006; Turner et al., 1992). In addition to this specific type of threat being theoretically aligned with my arguments for what results should flow from threat, it also had the added benefit of being (a) suitable for a lab-based experiment in a university setting which limits more extreme types of threat, and (b) it was

believable and salient to the participants, who both had a sense that this type of outcome was possible and were personally concerned about avoiding such loss.

After training but before beginning the actual simulation, the threat manipulation was introduced. Teams in the experimental (i.e., high-threat) condition were told the following:

“As you can see, we will be videotaping your session. We are doing this because we are planning to use these tapes for training both in classes here on campus and in classes held for corporations. We are particularly interested in teams that do not exhibit functional team processes. The task we are using is particularly good for this purpose because it shows that even teams who should be good at decision making actually may not be that good. What this means is that we will be showing videos of all teams during these campus and corporate training sessions, focusing specifically on examples of poor team processes. Although parts of your video will be shown regardless, you are more likely to be singled out if you demonstrate poor team processes. Additionally, the names of those who demonstrate particularly poor team processes will be provided to your instructor and classmates.”

At the same point in time, teams in the control (i.e., low-threat) condition were told the following:

“As you can see, we have been videotaping your session. The videotaping that is occurring is just for research purposes. All videos

will be viewed, but only by researchers and your identity and actions will be kept anonymous.”

The wording of this manipulation, based on prior manipulations (Ellis, 2006; Turner et al., 1992), ensured that participants believed that videos would be watched regardless of performance levels but allowed the participants in the high threat condition to potentially feel anxious that their reputation is threatened by the videos. By introducing the manipulation prior to performance of the task, I ensured that threat impacted team functioning throughout the simulation, providing a longer time frame to capture reactions to threat. Students were debriefed about the true purpose of the videos at the end of the study, so as to ensure that participants in the high threat condition did not continue to feel additional pressure or anxiety.

Manipulation Checks:

To ensure that teams in the high-threat condition did in fact feel threatened by the treatment, teams responded to a measure of perceived pressure/tension from the Intrinsic Motivation Inventory (Deci, Eghrari, Patrick, & Leone, 1994). These measures were administered at the end of Time 4. The specific items can be found in Appendix B.

The proactivity manipulation resulted in teams all composed of members either above or below the mean level of proactivity, depending on their condition. To additionally ascertain whether team proactivity composition lead to specific behaviors that would be expected by more proactive teams, I coded the total number of voice behaviors (which are typically associated with proactive personality; Morrison, 2011), demonstrated across the task in a sub-sample of 25 teams.

Measures

Proactive Personality:

Proactive personality was assessed by individual participants' responses to a 10-item measure of proactive personality (Bateman & Crant, 1993), obtained at least one week prior to participation in the experimental simulation. Specific items can be found in Appendix B. Reliability for the scale was $\alpha = .83$.

Team Learning Processes:

Team learning processes were captured via a 6-item scale (Van der Vegt, de Jong, Bunderson, & Molleman, 2010). The scale was administered at the approximate midpoint of the simulation (after trial 4 of 10), and was assessed using team-referent items that were then aggregated to the team-level for analyses. Specific items can be found in Appendix B. Reliability for the scale was $\alpha = .84$. The mean $rwg(j)$ for team learning processes was 0.85. ICC(1) and ICC(2) for team learning processes were 0.50 and 0.83, respectively. These metrics indicate acceptable levels of agreement and reliability to justify aggregating to the team level of analysis.

Overall Team Performance:

Overall team performance was measured as the aggregate of total points attained by the team across the duration of the simulation. Teams understood that maximizing this score was the explicit goal of the simulation. These total points were computed by subtracting the total defensive score (i.e., points lost by attacks on the base or by losing assets) from the offensive score (i.e., points gained by destroying enemy targets) of the team across all 10 time periods.

Team Performance Improvement:

Team performance improvement was measured as the extent of performance improvement displayed by teams over time in this learning task. Performance at any time period was computed by subtracting the total defensive score (i.e., points lost by attacks on the base or by losing assets) from the offensive score (i.e., points gained by destroying enemy targets) of the team within that time period. This measure was assessed at each trial, permitting the examination of performance improvements over time. In order to ensure greater separation between the team learning processes and performance improvement measures, I used as the final measure of team performance improvement the trajectory of performance scores from trials 5-10. This reduced any temporal overlap with the survey measure of team learning processes, which was assessed after trial 4.

Control Variables:

To permit a more robust assessment of the effect of team learning processes on later performance trajectories (times 5-10), I separately calculated and controlled for the performance trajectory of times 1-4 (i.e., all time points prior to assessing team learning processes). I also controlled for average team age and gender, as it is possible that older students are more likely to be resilient to academically-related threats, and as males may be more likely to have experience with war-game simulations.

Chapter 4: Analyses and Results

Manipulation Checks

To examine the effectiveness of the threat manipulation, participants completed the perceived pressure/tension scale from the Intrinsic Motivation Inventory (e.g., Deci, Eghrari, Patrick, & Leone, 1994) after Time 4. Coefficient alpha for this measure was .83. A sample item is, “My team has felt very tense while doing this activity.” Teams in the experimental condition felt more stress ($m = 3.21$, $SD = 0.83$) than teams in the control condition ($m = 2.52$, $SD = 0.92$; $t[92] = 3.82$, $p < .05$). Additionally, a number of team members in the high threat condition made comments suggesting that the threat manipulation was effective, such as “This is totally freaking me out”, “I didn’t think I would be this stressed out, guys, I’m actually pretty nervous,” and “Oh, no way; we cannot do bad enough to let it get back to [the instructor]!”

To examine the effectiveness of the proactivity manipulation, I first ensured that there were mean differences between conditions on levels of proactive personality. In line with my condition assignment rules, the proactivity condition had significantly higher levels of proactivity on average ($m = 4.09$; $SD = 0.18$) than did the low proactivity condition ($m = 3.50$; $SD = 0.21$; $t[92] = 12.26$; $p < .05$). Next three researchers including myself coded the voice behaviors of a subset of 25 teams from my total sample. Cohen’s kappa between raters indicated acceptable levels of agreement ($K = 0.73$). The voice behaviors of all members were counted and averaged across trials to calculate a total count for each team. The difference between

the high proactivity condition ($m = 94$; $SD = 26$) and low proactivity condition ($m = 73$; $SD = 15$) was significantly different in the expected direction ($t[92] = 4.77$; $p < .05$). Although my theory suggests that proactive teams demonstrate proactivity in several important ways beyond just voice, this manipulation check provides evidence that teams in the high proactivity condition demonstrated more proactive behaviors in their approach to their work.

Analysis of Performance Trajectories

The first step in testing my hypotheses was obtaining parameter estimates for performance trajectories so that I might control for the trajectory of early performance (times 1-4) when predicting the dependent variables of total team performance and team performance trajectory (times 5-10) in my tests for mediation and moderated mediation. Using random coefficient modeling in HLM 6 (Raudenbush, Bryk, & Congdon, 2004), in two separate analyses I nested times 1-4 and times 5-10, respectively, within teams in a random slopes model that predicted overall team performance. For the former model, time was coded as 0,1,2, and 3 for times 1,2,3, and 4, respectively. For the latter model, time was coded as 0,1,2,3,4, and 5 for times 5,6,7,8,9, and 10, respectively. From these analyses, empirical Bayes parameter estimates of the slopes were obtained and saved for every team, to be used in the analyses reported below (cf. Bliese & Ployhart, 2002; Chen, 2005).

Hypothesis 1: Threat and Team Learning Processes

All correlations can be found in Table 1. To test Hypothesis 1, I regressed team learning processes onto threat after centering all variables (for this and

subsequent analyses). In line with my expectations, threat only marginally predicted team learning processes ($B = -0.34$, $SE = .20$, $p < 0.10$; see Table 2). Hence,

Hypothesis 1 was not supported.

Table 1. Correlations

Variable	mean	s.d.	1	2	3	4	5	6
1. Threat Condition	0.51	0.50	-					
2. Proactivity Condition	0.46	0.50	0.05	-				
3. Team Learning Processes	3.43	0.44	-0.17 [†]	.26*	(0.84)			
4. Team Performance Improvement (time 1-4)	1.84	1.50	-0.24*	0.01	.26*	-		
5. Team Performance Improvement (time 5-10)	0.23	0.54	0.03	0.04	.31*	0.15	-	
6. Total Team Performance	17.10	59.12	0.11	0.02	.37*	.51*	.73*	-

Notes: $n = 94$, observations are 5 member teams. Cronbach's alpha reported on diagonal for survey measure

Threat and Proactivity Conditions both coded 0 1 for low high levels, respectively.

* $p < .05$; † $p < .10$; two tailed tests

Hypothesis 2: Mediation

To test Hypothesis 2, which predicted that team learning processes mediates the relationship between threat and the separate outcomes of a) overall team performance and b) changes in performance over time, I examined regression equations and ran mediation analyses. After including the controls and accounting for threat, team proactivity, their interaction, and early performance change (times 1-4), team learning processes demonstrated a significant positive relationship with overall team performance ($B = 0.25$; $SE = .11$; $p < .05$), as well as with team performance trajectory (times 5-10; $B = 0.23$; $SE = .11$; $p < .05$; see Tables 3 and 4). However, the bias-corrected bootstrapped indirect effect (Preacher & Hayes, 2004) of threat was not significant on team performance trajectory ($B = -0.10$; $SE = .07$; $p > .05$), 95% CI of (-0.26, 0.01), and on overall performance ($B = -0.12$; $SE = .08$; $p > .05$), 95% CI of (-0.29, 0.02). Hence, Hypothesis 2 was not supported.

Table 2. Hierarchical Regression Results DV: Team Learning Processes

DV: Team Learning Processes		
	Model 1	Model 2
Age	-0.07 (.07)	-0.08 (.08)
Gender	0.20 (.42)	0.30 (.41)
Threat Condition	-0.34 [†] (.20)	-0.74* (.26)
Proactivity Condition	0.49* (.20)	0.00 (.26)
Threat X Proactivity		0.90* (.37)
Total R^2	0.11*	0.17*
ΔR^2		0.06*

Notes: $n = 94$, observations are 5-member teams; unstandardized betas are reported.

Threat and Proactivity Conditions both coded 0/1 for low/high levels, respectively. Gender is coded 0/1 for female/male, respectively.

* $p < .05$; [†] $p < .10$; two-tailed tests

Table 3 Hierarchical Regression Results DV: Total Team Performance

DV: Total Team Performance				
	Model 1	Model 2	Model 3	Model 4
Age	-0.14 (.08)	-0.10 (.08)	-0.10 (.08)	-0.09 (.07)
Gender	0.81 (.45)	0.43 (.41)	0.48 (.42)	0.45 (.41)
Threat Condition	-0.29 (.22)	-0.10 (.20)	-0.29 (.27)	-0.14 (.27)
Proactivity Condition	0.66 (.21)	0.04 (.19)	-0.20 (.28)	-0.20 (.27)
Team Performance Improvement (time 1-4)		0.28* (.06)	0.28* (.06)	0.25* (.06)
Threat X Proactivity			0.16 (.38)	0.23 (.38)
Team Learning Processes				0.25* (.11)
Total R^2	0.09	0.27*	0.28	0.33*
ΔR^2		0.16*	0.01	0.05*

Notes: $n = 94$, observations are 5-member teams; unstandardized betas are reported.

Threat and Proactivity Conditions both coded 0/1 for low/high levels, respectively. Gender is coded 0/1 for female/male, respectively.

* $p < .05$; two-tailed tests

Table 4. Hierarchical Regression Results DV: Team Performance Improvement

DV: Team Performance Improvement (time 5-10)				
	Model 1	Model 2	Model 3	Model 4
Age	-0.02 (.08)	-0.02 (.08)	-0.02 (.08)	-0.01 (.08)
Gender	0.70 (.42)	0.63 (.43)	0.68 (.43)	0.66 (.43)
Threat Condition	-0.05 (.21)	-0.02 (.228)	-0.23 (.28)	-0.08 (.28)
Proactivity Condition	0.08 (.20)	0.07 (.20)	-0.19 (.29)	-0.19 (.29)
Team Performance Improvement (time 1-4)		0.05 (.07)	0.05 (.07)	0.02 (.07)
Threat X Proactivity			0.49 (.39)	0.28 (.40)
Team Learning Processes				0.23* (.11)
Total R^2	0.00	0.02	0.04	0.11*
ΔR^2		0.02	0.02	0.07*

Notes: $n = 94$, observations are 5-member teams; unstandardized betas are reported.

Threat and Proactivity Conditions both coded 0/1 for low/high levels, respectively. Gender is coded 0/1 for female/male, respectively.

* $p < .05$; two-tailed tests

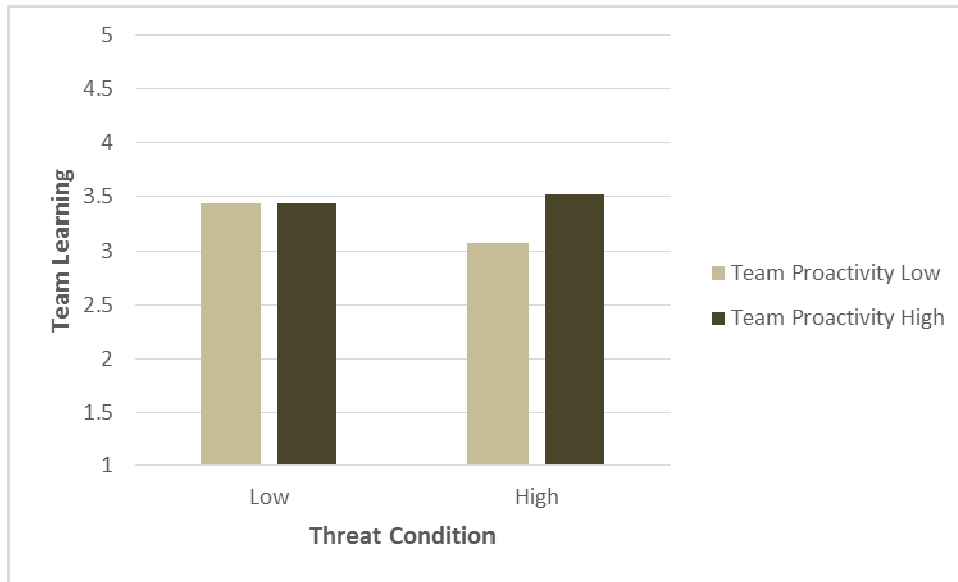
Hypothesis 3: Moderation

To test Hypothesis 3, which predicted that team proactivity enhanced the relationship between threat and team learning processes such that team learning processes were less negative in proactive teams, I tested for moderation in hierarchical regression. After controlling for the main effects of threat and team proactivity, the interaction between threat and team proactivity significantly predicted team learning processes ($B = 0.90$; $SE = .37$; $p < .05$) and significantly increased the explanatory power of the model ($\Delta R^2 = 0.06$; $p < .05$; see Table 2)¹. The nature of this moderation is plotted in Figure 2². In other words, the shape of the interaction suggests that in line with my expectations, threat was only problematic for team learning processes when teams were low in team proactivity ($m = 3.08$) and not when teams were high in team proactivity ($m = 3.52$).

¹ It is worth noting that this relationship was significant even when controlling for average performance (times 1-4) or change in performance (times 1-4) prior to the measure of team learning.

² As a robustness check, I also examined this model with conscientiousness entered instead of proactivity, as the two constructs are conceptually similar and often exhibit correlations well above 0.40. Including all other controls as the reported model, the moderating effect of conscientiousness was not significant ($B = 0.41$, $SE = .42$, $p > 0.10$).

Figure 2. Interaction between Threat and Proactivity on Team Learning Processes



Hypothesis 4: Moderated Mediation

To test Hypothesis 4, which predicted that the mediated relationship between threat, team learning processes, and both types of team performance (respectively) would be enhanced by team proactivity (i.e., the effects of threat would be less negative), I examined first-stage mediated moderation models in MPLUS 6.1 (Muthén & Muthén, 2010), in line with recommendations provided by Edwards and Lambert (2007). I used a Monte Carlo simulation with an MLR estimator to obtain bias-corrected 95% confidence intervals for estimates of the conditional indirect effects for each of these relationships. In addition to entering the two independent variables and their interaction term, I also controlled for early performance change (times 1-4) to rule out the possibility that later reactions to threat were impacted simply by perceptions of performance changes instead of my expected theoretical expectations.

Table 5. Indirect Effects of Threat on Total Team Performance via Team Learning Processes

DV: Total Performance							
Moderator variable	Effect					Bias-Corrected 95% Confidence Intervals (indirect effects)	
	Direct	s.e.	Indirect	s.e.	Total	Lower	Upper
Proactivity							
Low	0.09	0.36	-0.59*	0.26	-0.50*	-0.71	-0.08
High	0.09	0.36	0.09	0.10	0.00	-0.08	0.37
Differences	0.00		.68*		0.50*		

n = 94 teams. Controlling for Performance Trajectory (times 1-4); unstandardized betas reported

* *p* < .05; two-tailed tests

parameters obtained using Monte Carlo simulation with MLR estimator, 5000 iterations

Table 6. Indirect Effects of Threat on Team Performance Improvement via Team Learning Processes

DV: Performance Improvement (times 5-10)							
Moderator variable	Effect					Bias-Corrected 95% Confidence Intervals (indirect effects)	
	Direct	s.e.	Indirect	s.e.	Total	Lower	Upper
Proactivity							
Low	0.20	0.39	-0.47*	0.24	-0.27*	-0.68	-0.08
High	0.20	0.39	0.07	0.08	0.13	-0.07	0.20
Differences	0.00		.54*		0.40*		

n = 94 teams. Controlling for Performance Trajectory (times 1-4); unstandardized betas reported

* *p* < .05; two-tailed tests

parameters obtained using Monte Carlo simulation with MLR estimator, 5000 iterations

As expected, when examining the outcome of total team performance, the indirect effects of threat on total team performance (via team learning processes) were significantly negative for low proactive teams ($B = -0.59$, $SE = 0.26$, $p < .05$) but not for high proactive teams ($B = 0.09$, $SE = 0.10$, $p > .05$). The bias-corrected 95% confidence intervals for these estimates were (-0.71, -0.08) for low proactive teams, and (-0.08, 0.37) for high proactive teams (see Table 5). Further, as expected, the indirect effects of threat on team performance improvement (turns 5-10; via team learning processes) were significantly negative for low proactive teams ($B = -0.47$, $SE = 0.24$, $p < .05$) but not for high proactive teams ($B = 0.07$, $SE = 0.08$, $p > .05$). The bias-corrected 95% confidence intervals for these estimates were (-0.68, -0.08) for low proactive teams, and (-0.07, 0.20) for high proactive teams (see Table 6). Thus, I found evidence that the indirect effect of threat on team performance via team

learning processes was negative when team proactivity was low but not when team proactivity was high indicating that more proactive teams were less likely to experience negative effects of threat. Hence, hypotheses 4a and 4b were supported.

Chapter 5: Discussion

Building from theory on proactivity, I developed and tested a model that accounts for how and why threat negatively impacts team learning processes and performance. My findings generally support my expectations, leading me to make two conclusions. First, threat negatively disrupts team learning processes, which can hamper team performance outcomes. Second, more proactive teams experience less detriment to learning or performance when under threat, whereas less proactive teams experience decreases in learning and performance when under threat. I next discuss several theoretical and practical implications of this dissertation.

First, I strengthen theory on the relationships between the relationships threat has with team learning processes and performance by directly examining what might mitigate these negative relationships. By articulating why threat might be specifically problematic for team learning processes, I help to expand a literature that often nods to the difficulties of learning in the presence of environmental challenges without directly examining how, when, or why such challenges might disrupt learning. By explaining why teams may not necessarily passively respond to threat, as much of the previous literature has assumed, I also extend prior work that has often overlooked potential remedies of the results of environmental challenges on team functioning. By providing theory as to why team proactivity— which entails an active approach to team processes— can help buffer against threat-induced losses to team learning processes, this work paves the way for future research on how teams might actively

engage in developing and refining team processes to enhance team functioning in difficult circumstances.

Second, I extend theory on team proactivity. Adding to a recent exploration into the outcomes of team proactivity, I am among the first to specifically address the importance of proactivity to team learning processes. I explain why proactivity might be especially important when teams must learn under threat. By explaining that when faced with threat proactive teams are better able to positively frame threats, experience higher levels of efficacy, and devote more effort towards proactive behaviors such as voice and taking charge that help generate novel ideas that can strengthen team learning processes, I test an important assumption about proactivity. Specifically, much prior theorizing has posited that proactive individuals (and teams, by extension) are able to better overcome barriers to progress (e.g., Frese & Fay, 2001; Grant & Ashford, 2008), little work has directly tested this (see Tesluk & Mathieu, 1999 for an exception). Beyond leadership practices and specific team process, which Tesluk & Mathieu (1999) posited enhanced team performance when faced with performance barriers, this dissertation explains that team composition is an additional and important antecedent to team learning processes when faced with threat.

Most of the limited work on outcomes of team-level proactivity has examined facilitative conditions required for team proactivity to impact performance (Grant & Patil, 2012; Frazier & Bowler, 2013; MacKenzie, Podsakoff, & Podsakoff, 2011; McClean, Burris, & Detert, 2012). Given underlying theory that positions proactivity as an active approach to work that overcomes challenging conditions, it is slightly

ironic that most work at the team level has demonstrated only that proactivity is beneficial under the right circumstances. Taking a different perspective, I demonstrate that proactivity may be an important facilitative condition to team learning processes, helping to decrease the harm that threat can do to team learning processes and performance.

Although threat did not significantly predict team performance, the effect of threat on both team learning processes and performance became significant when accounting for levels of team proactivity. This suggests that when examining the impact of threat on team-level outcomes, it may be necessary to account for characteristics of the team before drawing any final conclusions. Although I intentionally examined the moderating effects of proactivity due to strong theoretical reasons to do so, it is likely that other team characteristics (e.g., goal orientation, efficacy, ability, experience) may mask the impact that threat and other environmental conditions have on team functioning.

Prior work on team learning processes has not strongly emphasized the role of team composition or threat. Although some work has emphasized the importance of goal orientation and efficacy (e.g., Bunderson & Sutcliffe, 2003; Chen et al., 2005), these examinations have typically measures such constructs as emergent states rather than member traits. Although broad theoretical models of team learning processes have highlighted the role of task attributes on team learning processes (Edmondson et al., 2007), these task attributes have typically included team task or task routineness, with other task characteristics or environmental conditions being embedded within specific research settings. This has led prior researchers to suggest that “future research

should pay more explicit attention to developing and testing theory about how task attributes affect team learning processes” (Edmondson 2007: 293). By examining the role of both proactivity and threat on team learning processes, I highlight the importance of team composition to team learning processes, and begin to explore characteristics of teams’ tasks or environments which can impact team learning processes.

Managerial Implications

The central implication for managers to take away from this dissertation is that how teams are composed with respect to members’ proactivity may have serious implications for their capacity to learn and perform in conditions of threat. Although managers do not often have the luxury of having complete control over all team members’ personal characteristics, it is not a stretch to be able to select some members over others based on one or two important individual differences. Specifically, I would urge managers to consider giving additional weight to individual proactivity when selecting members for teams that are likely to operate in the face of threat. As I did not find evidence that proactivity is at a premium for team learning processes without the presence of threat, if team membership is flexible over time (e.g., if employees are members of multiple teams or share shifts in interchangeable role-based team structures), managers may consider assigning their most proactive employees to teams likely to face the most threat at any given time, and cycling less proactive individuals to teams where learning is important but threat is less likely.

Limitations and Future Research Directions

This dissertation is not without its limitations. Examining my model in a laboratory context provides more control and measurements of critical behaviors, but it also reduces the external validity of the study. Further, the task achieved acceptable levels of psychological realism, as participants tended to become highly engaged. However, it is very likely that the perception of threat in this setting is far weaker than threats that are experienced in the field by individuals and teams that might have long-lasting losses that drastically impact their psychological, physical, and economic well-being. Future work ought to more directly examine the effects of threat and proactivity on team learning processes in field studies. Doing so would greatly enhance the validity of my theory and permit an examination of other important contextual and team factors. Similarly, this work focused on one specific type of threat. Although I provided theory for why the broad range of potential threats are likely to have similar effects on team functioning, it is possible that different types of threat have more or less impact on team learning processes or performance. Future work should examine whether this model holds when operationalizing threat in different ways.

An additional limitation of this study is that I focused specifically on internal resources that proactive teams possess to overcome threat (i.e., member traits, states, and behaviors). Additional research is also needed to ascertain whether proactive teams develop other internal resources (e.g., positive affect, denser networks), as well as whether they are able to change the extent to which they gain access to external resources or make more impactful changes to the environment itself (e.g., by actually

removing the source of the threat). These future investigations would do much to elucidate the extent to which team proactivity is beneficial.

Related to the last point, this paper admittedly takes a positive perspective on team proactivity, which is in line with virtually all work on proactivity. However, it is possible that the presence of team proactivity might actually be harmful in some contexts. For example, proactive teams that engage in experimental learning approaches, spending much effort on developing new approaches to their work and striving to change their environment might overlook some core functionalities they already possess that might be useful. Future work ought to examine the potential down sides of team proactivity.

Although this work takes an important step in investigating the role of proactivity at the team level, it also overlooks many of the likely dynamics that exist between individual team members' proactivity over time. By demonstrating the importance of team proactivity on team learning processes, future work will be poised to examine in greater detail multilevel effects by which team-level proactivity impacts individual-level phenomena, or how individual-level behaviors might shift team-level processes. For instance, by examining the average level of proactivity, I demonstrated that more proactivity in teams tends to be better, but as prior work has suggested, average levels of a trait can be obtained in very different ways (e.g., by having one extraordinarily high member; e.g., Harrison & Klein, 2007). Future work that can more fully account for top-down or bottom-up effects involved in how teams engage proactively in learning tasks will do much to advance our understanding of

team functioning. This work should also examine whether different patterns of proactivity are important for team learning processes.

Appendices

APPENDIX A: Task Screenshot

Commander-Team Common Operational Picture

Player Game Grid Misc Test Printers Zoom

Turn 1 Initial Planning 0:00
Team: 0 SubTeam: 100 Player: 100

	Opportunity		Threat		Unknown	
	Large	Small	Large	Small	W	X
Fixed					W	X
Mobile					Y	Z

	1	2	3	4
Strike	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Escort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Info	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DA Debug

StartGameStage A

APPENDIX B. Measures

Proactive Personality (Bateman & Crant, 1993; 1-5 Likert scale with 1 = strongly disagree and 5 = strongly agree)

- 1-I am constantly on the lookout for new ways to improve my life.
- 2-Wherever I have been, I have been a powerful force for constructive change.
- 3-Nothing is more exciting than seeing my ideas turn into reality.
- 4-If I see something I don't like, I fix it.
- 5-No matter what the odds, if I believe in something I will make it happen.
- 6-I love being a champion for my ideas, even against others' opposition.
- 7-I excel at identifying opportunities.
- 8-I am always looking for better ways to do things.
- 9-If I believe in an idea, no obstacle will prevent me from making it happen.
- 10-I can spot a good opportunity long before others can.

Team Learning Processes (Van der Vegt, de Jong, Bunderson, & Molleman, 2010; 1-5 Likert scale with 1 = totally disagree and 5 = totally agree)

- 1-We talk about different ways in which we can reach our objectives.
- 2-In this team the results of actions are evaluated.
- 3-If things don't work out as planned, we consider what we can do about it.
- 4-We ask ourselves how effective our procedures for reacting to changes are.
- 5-We regularly discuss whether the team is working effectively.
- 6-The team often reviews its methods for getting the job done.

Threat Manipulation Check: Pressure/Tension Scale (adapted from Intrinsic Motivation Scale; e.g., Deci, Eghrari, Patrick, & Leone, 1994; 1-5 Likert scale with 1 = strongly disagree and 5 = strongly agree)

- 1-My team did not feel nervous at all while doing this. (R)
- 2- My team felt very tense while doing this activity.
- 3- My team was very relaxed in doing these. (R)
- 4- My team was anxious while working on this task.
- 5- My team felt pressured while doing this task.

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